Badger Meter

ORION®Field Application 4.0

for Trimble® Ranger 3 with ReadCenter®

ReadCenter
Analytics

ORION Field Application 4.0.0
Read Route- Active Route Marketing Rou
Routes: Marketing Route
Completed: 0 of 20 Services

Load/Unload
Loaded 9/8/14 1:16:15 PM

Route File Management
Unarchive previously loaded data.

Settings (Limited Functionality)

Menu   Exit

User Manual

CONTENTS

APPENDIX

INTRODUCTION

The ORION® Field Application 4.0 software is designed for Utilities that use the Trimble® Ranger 3 handheld computer for route meter reading and ReadCenter® software for reading data management. This manual is the guide for using the ORION Field Application software. Instructions for operating the handheld are also included.

Audience and Purpose

This manual is intended to be used by field technicians for collecting accurate utility meter readings from residential and commercial locations using the handheld. Equipped with the ORION Field Application meter reading software, the handheld can be used for reading endpoints in the field.

NOTE: To provide the best solution for our customers, Badger Meter continually improves software programs and updates this manual periodically to reflect upgrades. Therefore, some discrepancies may be detected between the installed software and this manual.

System Overview

The Trimble Ranger 3 handheld computer is a flexible and easy-to-use tool which can be used with various meter reading technologies. It provides utilities with a handheld interrogator that can be operated with a touch screen and a customized keypad for data entry.

The handheld is compatible with ORION, manual and touch read systems, including these ORION endpoints.

- The ORION Fixed Network endpoint (SE) is a full functioning two-way water endpoint for use in either mobile or fixed network mode of operation. Once installed, ORION Fixed Network endpoints operate in mobile mode and automatically transition to fixed network mode of operation when ORION network gateway transceivers and ReadCenter software are deployed. ORION Fixed Network endpoints automatically transition to a backup mobile mode of operation if the network is disrupted for a period of time.

- The ORION Migratable endpoint (ME) is a full functioning two-way water endpoint for mobile applications with the capability of migrating to fixed network mode to support future utility growth. In addition to providing the current reading, the two-way functionality of the ORION Migratable endpoint allows users to capture data profile information wirelessly, without having to access the endpoint during the normal reading process.

- The ORION Classic endpoint (CE) is a one-way endpoint designed for mobile meter reading.

About This Manual

This manual is arranged as follows:

- **Getting Started**
  The first part of the manual covers basic information including how to start and exit the software, set the handheld date and time, navigate the software and prepare for route reading.

- **User Guide**
  The User Guide provides step-by-step instructions for meter route reading and related procedures including two-way communication functions.

- **Handheld Operation**
  This section covers overall care and operation of the handheld, including the initial handheld setup.

- **Appendix**
  The appendix includes a glossary of terms, abbreviations and icons used in the manual, troubleshooting and Badger Meter Technical Support contact information.

Typographic Conventions

- **Bold**: Bold text and upper case are used for items on the software screens that you need to select or choose by tapping a button, highlighting, checking a box or another similar means.

  Example: Tap the **View Report** button.

- *Italics*: Names of options, boxes, columns and fields are *italicized*. In most cases, first letters will be capitalized.

  Example: The value displays in the *Status Information* field.

- "Quotation Marks": Messages and special markings are shown in quotation marks.

  Example*: "Service Stopped"* displays in the title bar.

- Instructions for using Quick Keys/Hot Keys always indicate a double key press, which is the Settings default. Single press is also available. See *"Quick Keys" on page 54* and *"Keypad Shortcuts" on page 82* for details.

NOTE: Names, addresses and other customer-related information displayed in screen examples were created for demonstration purposes in this manual. No actual customer information is included.

Handheld Configuration

The handheld can be ordered with configurations that meet the needs of the utility. For details, see *"Configuration Options" on page 83*.

For utilities deploying mixed ORION ME and CE systems, an external mobile receiver or transceiver can be added. See *"Connecting an External Mobile Transceiver or Receiver" on page 84*.

Product Unpacking and Inspection

Upon opening the shipping container, visually inspect the product and applicable accessories for any physical damage such as scratches, loose or broken parts, or any other sign of damage that may have occurred during shipment.

NOTE: If damage is found, request an inspection by the carrier's agent within 48 hours of delivery and file a claim with the carrier. A claim for equipment damage in transit is the sole responsibility of the purchaser.

License Requirements

Trimble Ranger handhelds with internal or external ORION Migratable (ME) transceivers comply with Part 15 of FCC Rules. Operation is subject to the following conditions: (1) The ORION meter reading systems may not cause harmful interference, and (2) the ORION meter reading systems must accept any interference received, including interference that may cause undesired operation.

In accordance with FCC Regulations, "Code of Federal Regulations" Title 47, Part 2, Subpart J, Section 1091, endpoints pass the requirements pertaining to RF radiation exposure. However, to avoid public exposure in excess of limits for general population (uncontrolled exposure), a 20 centimeter distance between the mobile device and the body of the user must be maintained during operation.

No FCC license is required by a utility to operate an ORION meter reading system.

ORION meter reading systems comply with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) they may not cause interference, and (2) they must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes: (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Any changes made, but not approved by Badger Meter, can void the user's authority to operate the equipment.

IMPORTANT

Before using the handheld for the first time, see *"Initial Setup" on page 66* **to ensure that the battery is charged and the device is set up correctly.**

GETTING STARTED

INITIAL STARTUP

Before using the handheld for the first time, see *"Initial Setup" on page 66* to ensure that the device is set up correctly and the battery is charged.

NOTE: In addition to the keypad/keyboard, the handheld has a touch screen. Use the stylus to navigate and select objects on the touch screen or simply touch the screen with your finger. For complete information, see *"Using the Touch Screen" on page 71*.

SOFTWARE SECURITY MODES

The Trimble Ranger 3 handheld can operate in one of two modes:

- **Admin mode** gives full-use access to all the software loaded on the handheld. In this mode, battery life may be affected if applications such as Internet services and email are running.

- **Kiosk mode** gives access to Badger Meter software, with date and time changes only. After the software installation is complete, the Kiosk mode application is located in the **My Documents** folder as shown below and can be activated from that location. Tapping the file immediately installs Kiosk mode and requires a password security code to uninstall.

  To be able to use the barcode scanner while in Kiosk mode, the shortcut button for using the scanner must be set while in Admin mode, before changing to Kiosk mode. See *"Barcode Scanner" on page 73* for additional information.
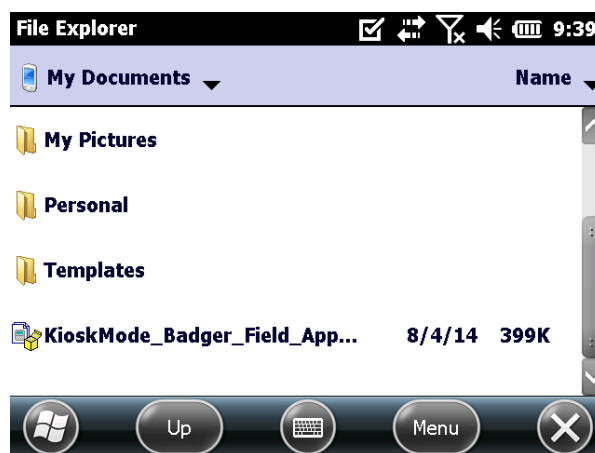

Figure 1: My Documents folder

NOTE: The software security mode is set at the time of order. If the software security mode needs to be changed, contact Badger Meter Technical Support.

PROGRAM STARTUP AND EXIT

1. Press the green power key on the keypad to turn on the handheld.

2. On the home screen, tap the **Windows® Start** button in the lower left corner of the navigation bar at the bottom of the screen.

   Result: In Admin mode, the program icons display as shown in Figure 3.

   If the handheld is in Kiosk mode, skip to step 5. For more information about Kiosk mode, see "Software Security Modes" on page 8.
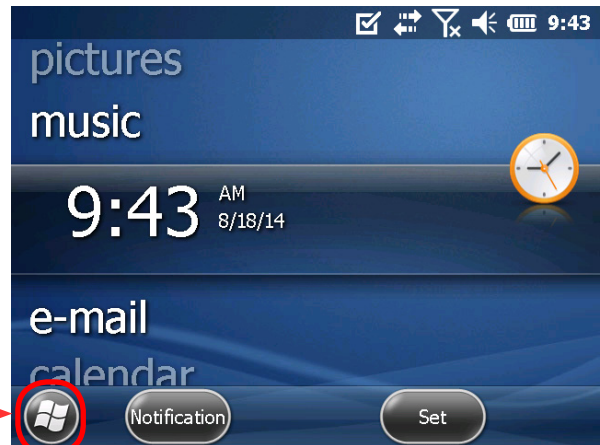
   Tap Windows Start

Figure 2: Windows home

3. Tap the folder labeled **Badger Meter Applications**.

   NOTE: To rearrange icons on the screen, touch, hold and drag the icon, then release it in the location you prefer.
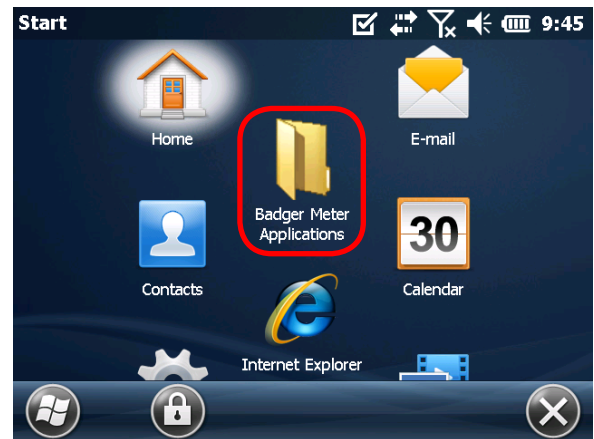

Figure 3: Badger Field Applications folder

NOTE: Badger Meter Applications includes a suite of meter reading software products. This manual includes descriptions and instructions for using the ORION Field Application software.

4. Tap the **ORION Field Application** icon.

   Result: The Verify Date and Time screen opens. See Figure 6.

Figure 4: ORION Field Application

NOTE: The first time you access the software, the License Agreement screen opens automatically.

The License Agreement must be accepted by an authorized representative of the customer/licensee.

Read the software license agreement and tap **I Accept**.

The License Agreement screen closes automatically. To see the License Agreement at any time, tap the **Menu** button that displays in the navigation bar at the bottom of the screen after login.

Figure 5: Accept license agreement

5. Verify the date and time shown on the screen. The time continually updates on this screen.

NOTE: The date and time on the handheld must be accurate to ensure communication with ORION endpoints.

If the date and time are correct, tap **Ok** and continue to *step 8*.

If the date or time need to be adjusted, tap **Change Time**.

Result: A screen displays as shown in Figure 7 *for correcting the date and/or time.*

Figure 6: Verify date, time

6. Tap the arrows to make changes to the date, time and/or time zone as needed. Then tap **OK**.

Result: The Clock & Alarms screen closes and the Windows home screen is displayed.

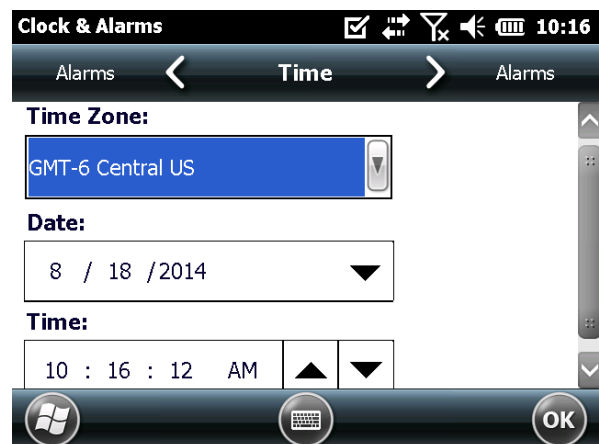7. Go back to step 2 and restart the application.

Figure 7: Adjust time zone, date, time

8. Once the time and date are verified, the ORION Field Application main menu opens.

    NOTE: A route must be loaded to begin reading meters. See *"Loading and Unloading with Memory stick" on page 92*.

Exiting the Software

Tap the **Exit** button in the navigation bar at the bottom of the screen to exit the ORION Field Application software.
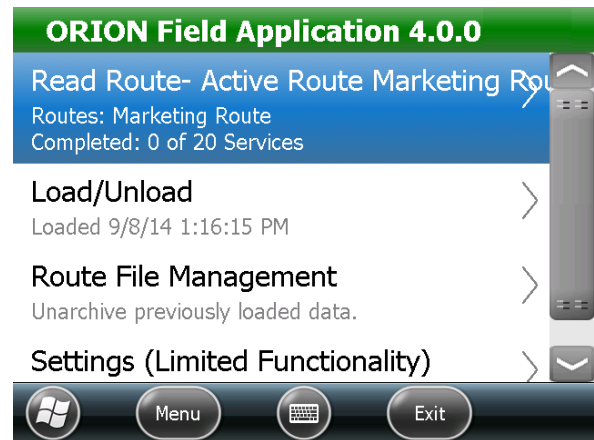

Figure 8: ORION Field Application main menu

Title Bar - Battery Status

In addition to the name of the software, the selected function, the color of the title bar on the software screens indicates battery charging status.

- Green = > 70% charged
- Red = < 40% charged
- Yellow = 40…70% charged
- Blue = handheld is recharging

Tap the title bar to view the battery status. In *Figure 9*, the battery is fully charged – 100%.

Figure 9: Title bar with battery status

Navigation Bar

Buttons that help navigate the software are shown in the bar at the bottom of the screen. The buttons that display depend on the software function on the screen. In *Figure 10*, the **Menu** and **Exit** buttons are displayed. The **Windows Start** button, which gives you access to the main Windows menu, is visible on every screen.

Figure 10: Navigation bar

Onscreen Keyboard

The center icon at the bottom of the ORION Field Application screens opens the onscreen keyboard as shown in *Figure 11*.

The onscreen keyboard can be used to enter information as an alternative to using the handheld keypad. Tap the icon to open the keyboard. Tap the icon again to close the keyboard.

Figure 11: Onscreen keyboard

MAIN MENU

The main menu is the starting point for all ORION Field Application operations.

Figure 12: Main menu

Read Route	Tap **Read Route** to begin reading meters. This selection is not active if a route is not loaded.
Load/Unload	Load a route from a memory stick to the handheld or unload a completed route from the handheld to a memory stick. See *"Loading and Unloading with Memory stick" on page 92* for complete information.
Route File Management	Unarchive and make previously unloaded route data available on the handheld. For complete information, see *"Route File Management" on page 45.*
Versa Probe Quick Read	Perform a VersaProbe Quick Read when a route is not loaded. See *"Versa Probe Quick Read" on page 47*.
	NOTE: This option will only display on the main menu if the VersaProbe is configured in **Settings**> **Hardware Options**. See *"VersaProbe Touch Pad Reads" on page 19*.
Settings	Set user preferences and options for meter reading and route processing, and set the communication (COM) ports for any equipment attached to the handheld. "Limited Functionality" refers to settings for users who are not currently using the BEACON® AMA software suite. For complete information, see *"Settings" on page 49*.
	NOTE: For utilities deploying mixed ORION ME and CE systems, an external mobile receiver or transceiver can be added to the handheld for route reading. See *"Connecting an External Mobile Transceiver or Receiver" on page 84* and *"Hardware Options" on page 50*.

Tap to select a menu option.

USER GUIDE

READING METERS

IMPORTANT

The COM port(s) must be set correctly for the handheld and the ORION Field Application software to operate correctly. Go to Settings from the software main menu to check the COM port settings and set your user preferences before route reading. See *"Settings" on page 49* **for complete instructions.**

Choose **Read Route** from the main menu to begin meter reading.

NOTE: If "No route available" displays for **Read Route**, see *"Load/Unload" on page 44*.

Login

1. From the ORION Field Application main menu, tap **Read Route**.

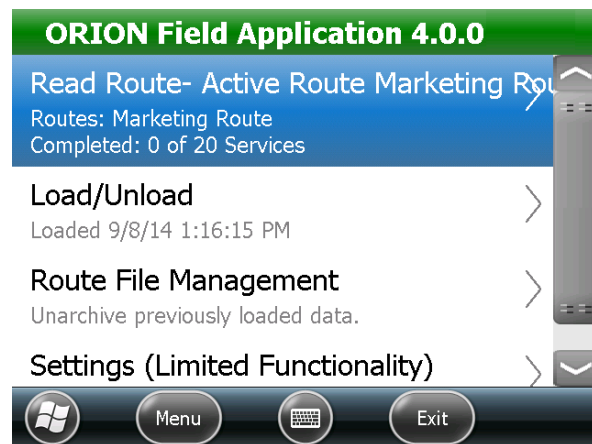   *Result: The PIN login screen displays.*

Figure 13: Main menu Read Route

2. Enter a three…seven character personal identification number (PIN) using the handheld keypad.

   NOTE: The PIN must be entered by an authorized representative of the customer/licensee. The PIN is user defined and can be a name, initials, an ID number or other information. The first three characters are passed back to the reading data management software.

3. Tap **OK** or press **ENTER** on the keypad.

   NOTE: If an invalid PIN is entered, the **OK** button will not activate. Re-enter a valid PIN and tap **OK** or press **ENTER**.
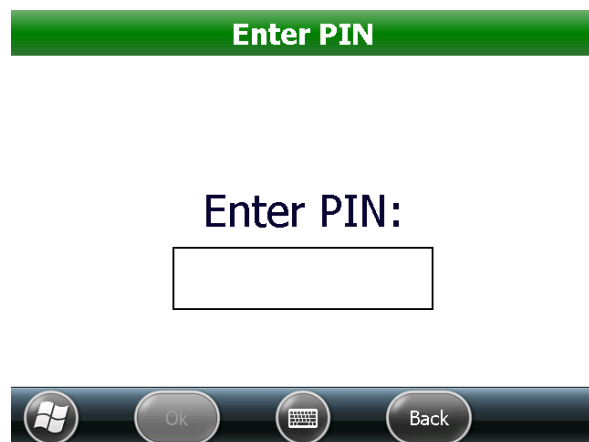

Figure 14: Enter PIN

Result: When a valid PIN is entered, the account read screen displays with the first account in the route.

Account Read Screen

When a route opens, the account read screen is the main screen that displays during meter reading. It shows account information, including customer information and the meter reading. Information and features available on the screen are shown in *Figure 15*, *Figure 16* and *Figure 17*, here and on the next two pages.
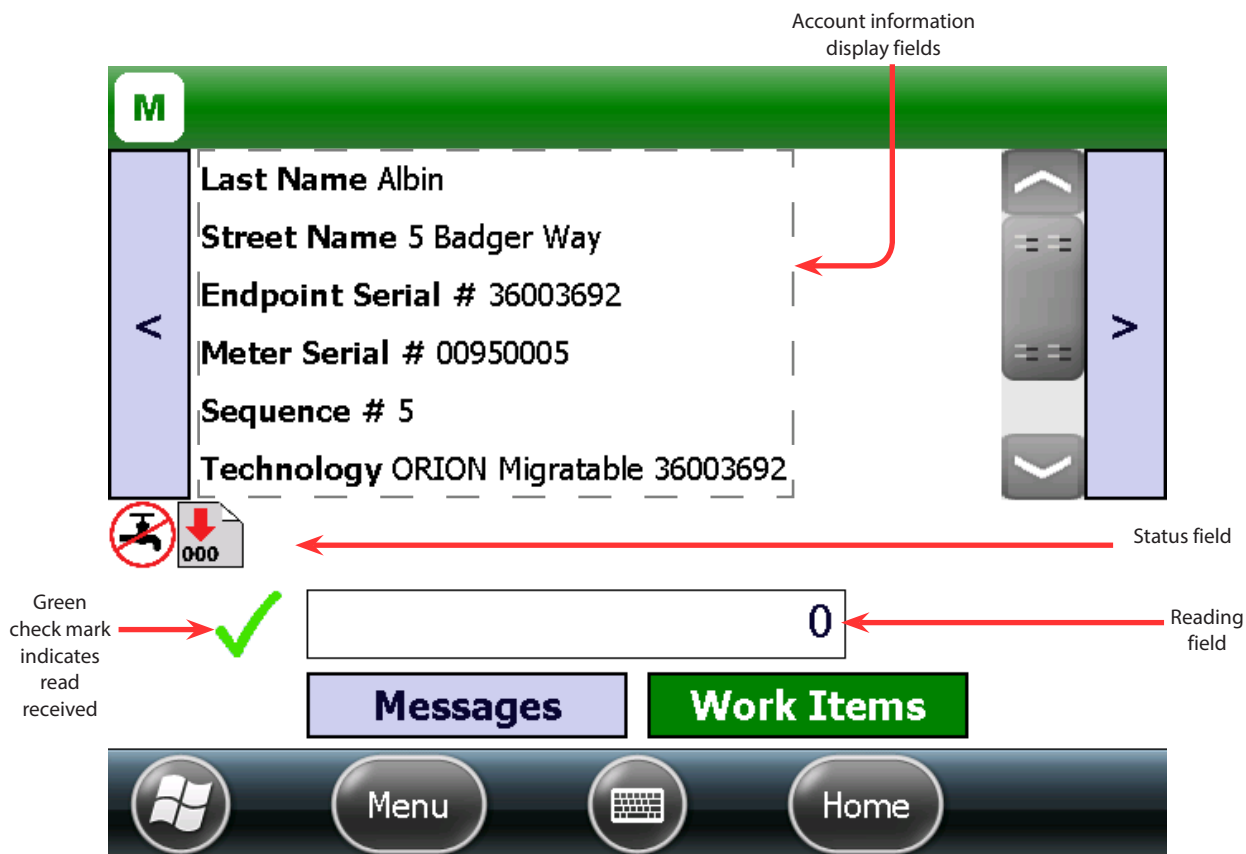

Figure 15: Account read screen – information fields

Display fields   Account information is listed and displayed, line-by-line, in the center of the screen. The meter technology type for the account is shown here if configured in **Settings**. Scroll to see all configured display fields.

Status field   Status and route information icons for the account display in the area of the screen below the account information. If an icon is displayed, tap the icon to see the condition or information it represents. For a complete list of all icons, see *"Account Status Icons" on page 88*. The field is blank when there is no alert or information.

Reading field   The meter reading field is located near the bottom of the screen, below the status field. A green check mark displays next to the field when a reading has been received or a manual read is entered. If the account has a tamper, the word "Tamper" displays in the reading field.
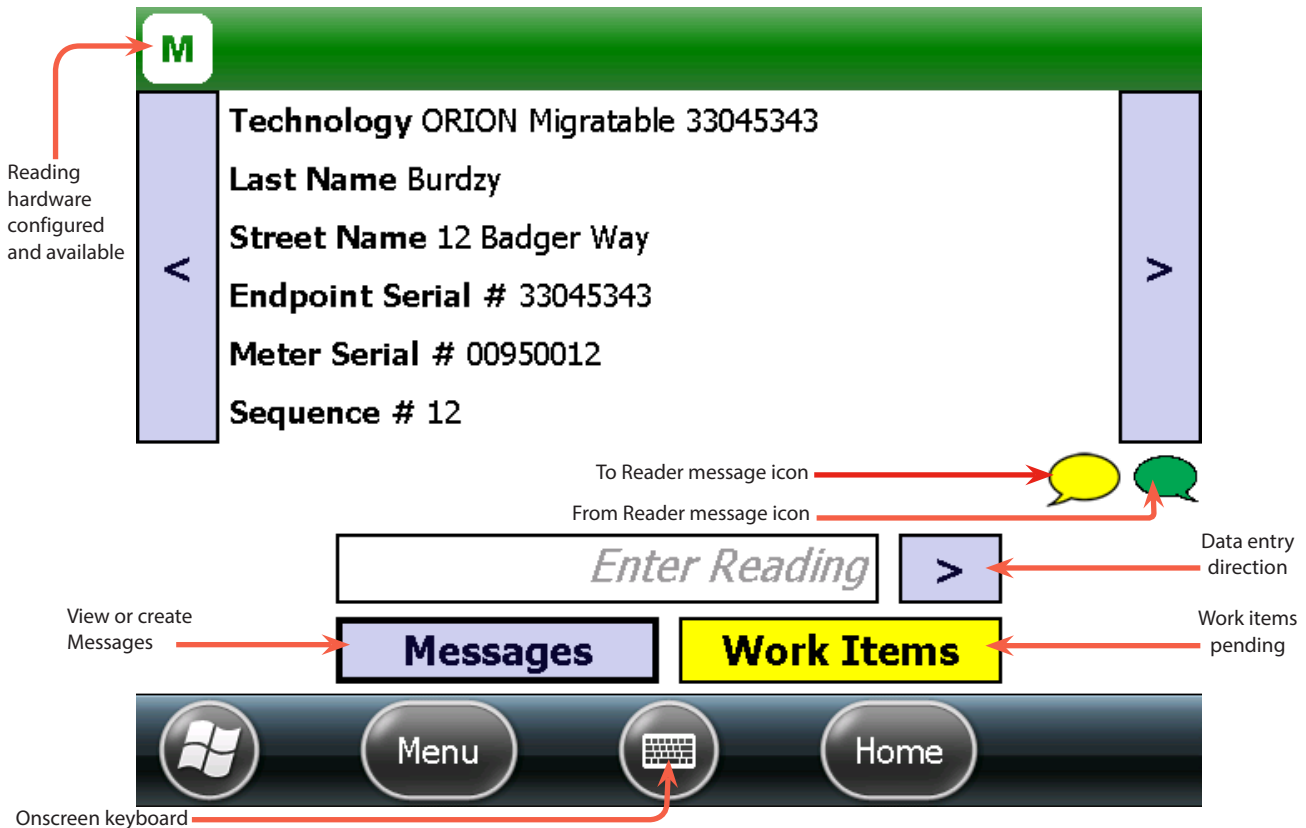
Figure 16: Account read screen – additional features

Reading hardware   Reading hardware configured for the handheld is represented by an icon in the title bar of the screen. In *Figure 16*, the **M** icon indicates the ORION Migratable technology is configured and the radio is on. If the icon has a slash through it ![M], the radio is off. Tap the icon to reconnect. Other options are **C** for ORION Classic technology and **VP** for VersaProbe technology. See *"Valid COM Ports" on page 89*.

> **NOTE:** Make sure hardware is correctly configured and the COM port is set to ensure the icon will display and the software application will work properly.

Data entry direction   Before a reading is received, an arrow displays to the right of the reading field as shown in *Figure 16*. Tap the arrow to change the data entry direction. A left pointing arrow (**<**) indicates left-to-right data entry. A right pointing arrow (**>**) indicates right-to-left data entry. You can also choose the data entry direction in Settings. See *"Reading Entry Directions" on page 55* for more information.

> **NOTE:** Gas meter readings are often entered right to left in the reading field.

Messages button   The **Messages** button displays below the reading field. It is used to create or view Reader codes, Trouble codes or Comments for the account. If a message exists for the account, a message icon displays in the same field as the status icons. The direction and color indicate if the message is TO the reader for FROM the reader, as shown in *Figure 16*. To read or create a message, tap the **Messages** button. See *"Reader Codes, Trouble Codes, Comments" on page 23*.

Work Items button   The **Work Items** button displays next to the **Messages** button for accounts with ORION Migratable endpoints (and Fixed Network endpoints in mobile mode). The button color indicates the **Work Items** status. For additional information, see *"Work Items" on page 25*.

Onscreen keyboard   The keyboard icon displays in the navigation bar of the software screens. Tap the icon to open and close the onscreen keyboard that can be used instead of the handheld keypad for text entry.
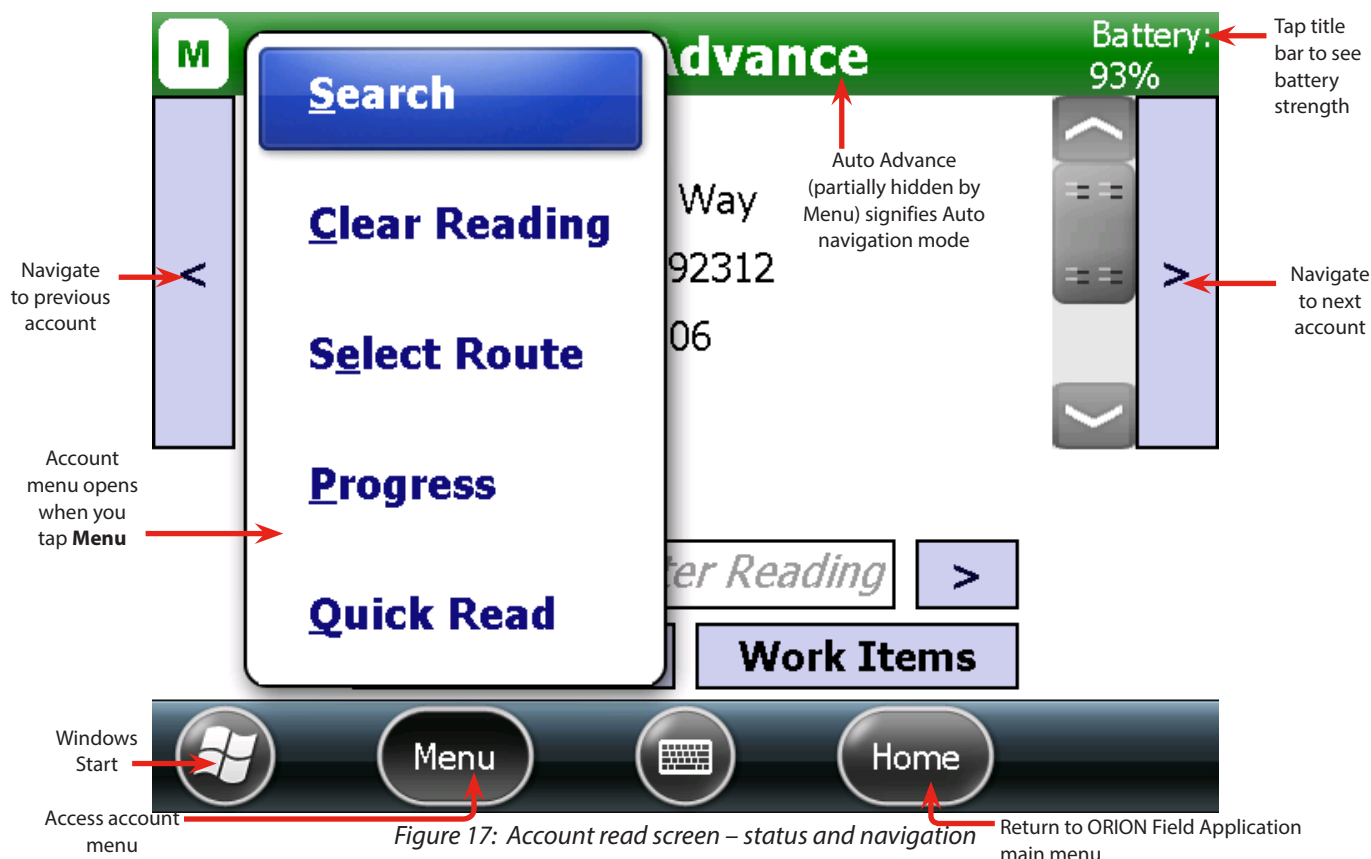
Figure 17: Account read screen – status and navigation

Navigation mode	To navigate through accounts in the route file, the meter reader can toggle from Manual to Auto navigation by pressing **AA** on the keypad. "Auto Advance" displays in the title bar when the route is in Auto mode as shown in *Figure 17*. If "Auto Advance" is not displayed, the route is in Manual mode. See *"Auto and Manual Route Navigation" on page 20* for more information.
Battery strength	Tap the title bar to view the handheld battery status. In *Figure 17*, the battery is 93% charged. See *"Title Bar - Battery Status" on page 11* for more information.
Previous / Next	Navigation buttons display on the left and right sides of the screen. Tap the left arrow to go back to the previous account in the route file. Tap the right arrow to go to the next account in the route file. Navigation buttons can be used in both Manual or Auto navigation mode.
Windows Start	Displays the Windows Start screen. Tap **Windows Start** to access other applications on the handheld.
Menu button	Tap the **Menu** button to display a popup menu of available options for the account.
	Search: Find accounts using various criteria. For complete instructions, see *"Search" on page 32*.
	Clear Reading: Erase the reading for the current account. See *"Manual Reads" on page 18*.
	Select Route: See all routes loaded on the handheld. Also, use this option to mark a route complete. See *"Mark Route Complete" on page 22*.
	Progress: A summary of progress for the current route or all the routes loaded on the handheld. See *"Route Progress" on page 21* for additional information.
	Quick Read: Perform a Quick Read for any ORION endpoints within range that have reading hardware configured on the handheld. See *"Quick Read" on page 42* for additional information.
Home button	When selected, the **Home** button closes route reading and navigates back to the ORION Field Application main menu.

Capturing Meter Readings

The ORION Field Application captures meter readings in one of three ways:

- ORION radio (RF) read

- Manually keyed read

- VersaProbe touch pad read

Enter Reading **>**

Figure 18: Reading display field

When the reading is captured, the reading displays on the account read screen. If the meter reading is high or low, the handheld sounds an alarm, displays the condition and may or may not request further action depending on the Settings.

ORION RF Reads

When an ORION endpoint sends a reading, one of several results can occur.

- The handheld receives a transmission and stores the reading. If the meter was displayed on the screen, the display advances to the next customer account record (Auto navigation mode).

- The handheld receives a transmission that reports an alert such as a tamper or a potential leak. For a potential leak, the handheld logs the condition and stores a read. For a tamper, the handheld sounds an audible alert and prompts you to process the tamper before advancing to the next account. See *"Tamper Processing" on page 21.*

- No transmission is received from the ORION endpoint. Common reasons for not receiving a reading include:

  - Incorrect endpoint serial number.
  - Endpoint has not been started.
  - Endpoint serial number is not loaded into the handheld.

  - Handheld is out of range of the endpoint.
  - Handheld time and/or date is not correct
  - The line of sight between the handheld and the endpoint is obstructed.

  Try moving closer to the meter or tap the right arrow on the account read screen to skip the meter and go to the next account.

Manual Reads

The handheld can read ORION endpoints and touch pads, and collect manual reads. If the route contains a mix of meters, the handheld always stops at a manual or touch account to allow a meter reading when in Auto mode.

To enter a manual read

1. Tap the *Reading* field to activate it.
2. Use the keypad to type the reading value.
3. Press **ENTER** on the keypad to store the reading.

   Result: The software accepts the read and advances to the next account.

NOTE: If the meter reading is high or low, or has an exception condition, the handheld sounds an alarm, displays the condition and requests further action depending on Settings.

4. To clear and re-enter a reading, tap **Menu**> **Clear Reading** (*Figure 19*).
5. Tap **Yes** to confirm.
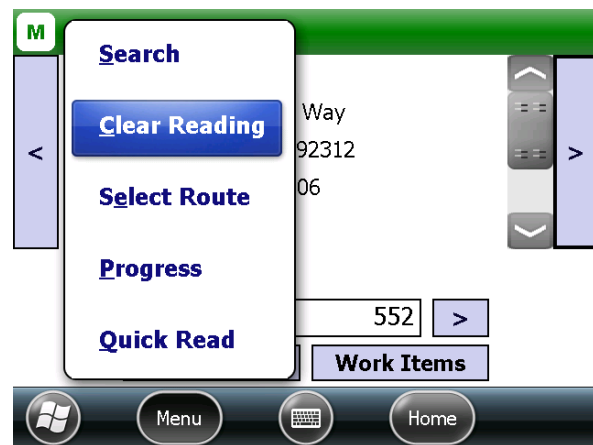6. Tap the *Reading* field again, enter the new read and press **ENTER** on the keypad.

Figure 19: Clear Reading

VersaProbe Touch Pad Reads

Before performing a VersaProbe touch pad read, make sure the VersaProbe battery is charged. Then follow these steps to add the VersaProbe and set the COM port.

Configuring the VersaProbe COM Port

1. Connect the VersaProbe to the serial port on the bottom of the handheld. The VersaProbe can also be connected via Bluetooth. See *"Using VersaProbe with Bluetooth" on page 94* for additional information.
2. From the ORION Field Application main menu, tap **Settings**> **Hardware Options**.

   Result: The Hardware Options screen opens.

3. Tap **Add Device** to open the selection screen.
4. Select **Type**> **Badger Touch**.
5. If the VersaProbe is connected using the serial port at the bottom of the handheld, tap **Port**> **COM1**.

   If the VersaProbe is connected via Bluetooth, tap the appropriate COM port for the VersaProbe Bluetooth connection.

   Result: "Badger Touch" and the COM port displays in the list on the Hardware Options screen.
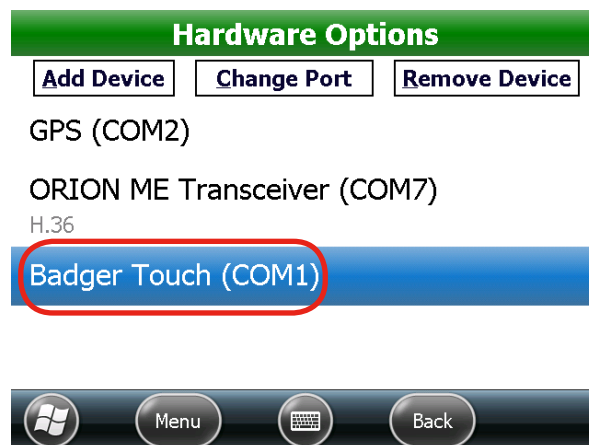
Figure 20: VersaProbe COM port set

> **NOTE:** For a list of valid COM ports, see *"Valid COM Ports" on page 89*.

Capturing a VersaProbe Reading

1. Access the VersaProbe account in the route file.
2. Align the end of the VersaProbe wand with the touch pad.
3. Squeeze and release the trigger to capture the reading.

   Result: The reading is passed to the handheld and stored in the account record.

   > **NOTE:** If the VersaProbe is connected via Bluetooth, the **VP** icon on the account read screen becomes an active button. Tap the **VP** button to reconnect if the Bluetooth connection initially fails.

In addition to capturing a VersaProbe read as part of a route, you can perform a VersaProbe Quick Read. For more information, see *"Versa Probe Quick Read" on page 47*.

Auto and Manual Route Navigation

Choose **Auto** or **Manual** mode when reading routes to navigate to the next account.

Auto Mode

- Automatically goes to the next unread account when the software hears a radio read for the displayed account or a manual read is entered.

- Previous and next navigation is active and can be used to advance to the next unread account.

Manual Mode

- Displays each account in reading sequence and moves to the next account when you navigate via onscreen arrows or quick key, or input a manual read and press **ENTER** on the keypad.

- Navigation is required. In Manual mode, accounts with and without a read are displayed.

To toggle between Auto and Manual mode, follow these steps.

1. From an account, press **AA** key on the keypad.

    Result: The words "Auto Advance" appear in the title bar of the screen to indicate the handheld is operating in Auto mode.

2. To return to Manual mode, press **AA** key again.

    Result: The words "Auto Advance" no longer display in the title bar of the screen. Manual mode is active.

Navigate to previous account

Navigate to next account
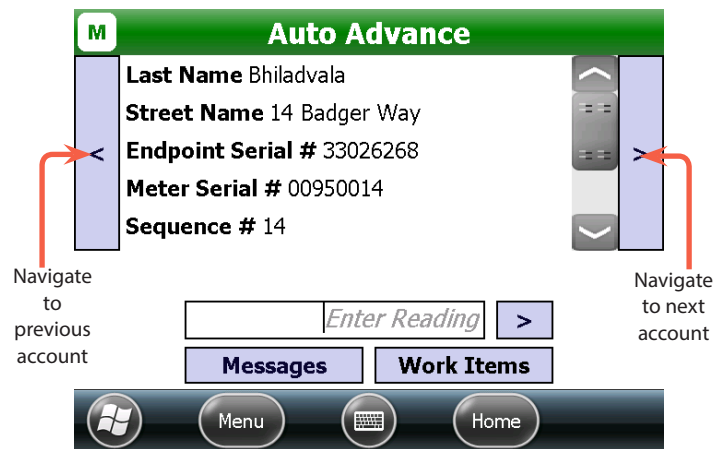
Figure 21: Auto mode

Regardless of which mode is active, reads are applied to the appropriate accounts as they are received. The handheld accepts the read, beeps and stores the read data.

Bookmark an Account

The software allows you to bookmark an account, making the account searchable and easier to find later.

To bookmark an account, press the **B** key twice **(BB)** or press **Fn** + **B** on the keypad while on the account read screen. A bookmark icon displays in the status field on the account read screen as shown in *Figure 22*.

NOTE: To clear a bookmark, press **BB** on the keypad again while on the account read screen.

Search Bookmarked Accounts

Accounts that have been bookmarked can be searched. See *"Search" on page 32* for complete information on searching accounts.
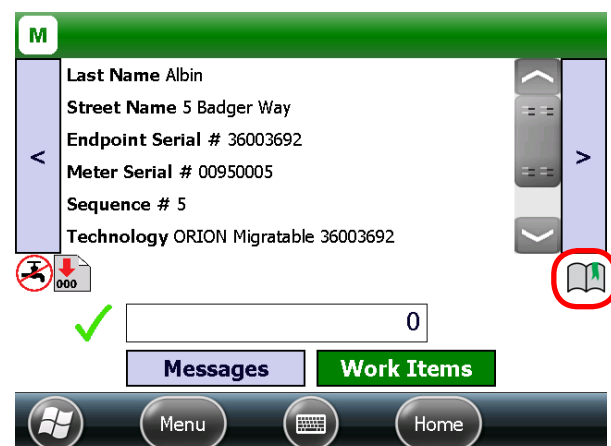

Figure 22: Bookmarked account

Route Progress

1. On the account read screen, tap **Menu**> **Progress** to see a summary of meter information for the routes loaded on the handheld.

2. Tap the **Menu** button on the Progress screen to see a list of all loaded routes (*Figure 23*). Then tap a route to see a summary for the selected route only.

   - To see details of any exception statuses reported, tap **Details.**

   - To bring up the Search screen with a list of accounts, double tap the field. Select an account on the Search screen to go directly to the account read screen. For example, double tap **Remaining** to see a list of accounts that have not been completed, or double tap **Tampers** to see a list of accounts that are reporting a tamper.
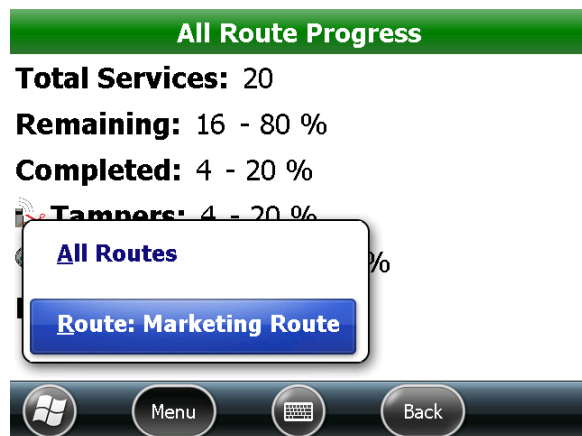
*Figure 23: Tap **Menu** to see all routes*
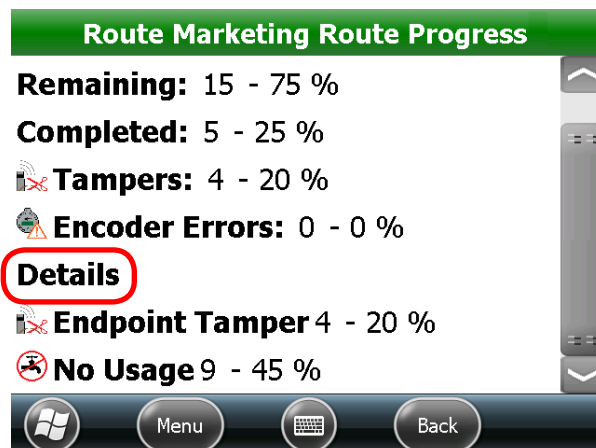
*Figure 24: Tap **Details***

3. Tap **Back** to return to the account read screen.

Tamper Processing

Whenever a potential tamper is detected, the Tamper Processing screen displays. The type of tamper displays at the top of the screen. *Figure 25* shows an "Endpoint Tamper."

To bypass the Tamper Processing screen, tap **Cancel**.

To see the screen again, tap the word "Tamper" that displays in the *Reading* field on the account screen.

(Optional) To process the tamper, follow these steps.

1. On the Tamper Processing screen, enter a reading in the *Reading* field and/or tap **Trouble Code** to enter a Trouble Code related to the tamper.

   NOTE: For more information about Trouble Codes, see *"Reader Codes, Trouble Codes, Comments" on page 23*.
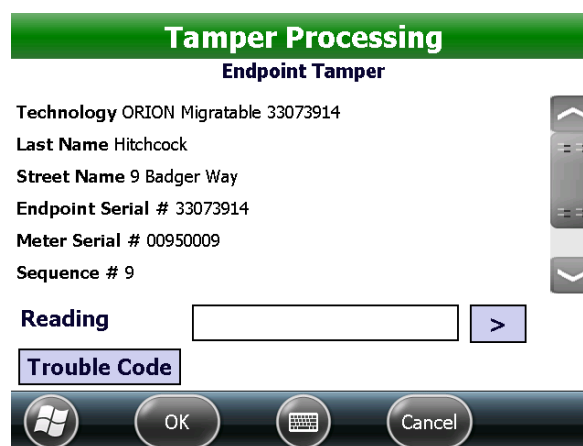
Figure 25: Tamper processing

2. Tap **OK**.

   Result: Your entries are accepted. The screen closes and the next account is displayed. The tamper flag will be sent back to RDMS with the route unload information.

READING METERS

Mark Route Complete

The **Select Route** option displays all routes loaded on the handheld and gives you the option to mark a route "complete."

To mark a route complete, follow steps 1 - 4.

1. From the account read screen, tap **Menu> Select Route**.
2. Tap to select a route.
3. Tap the **Mark As Complete** button.
4. On the confirmation screen, tap **Yes** to confirm.

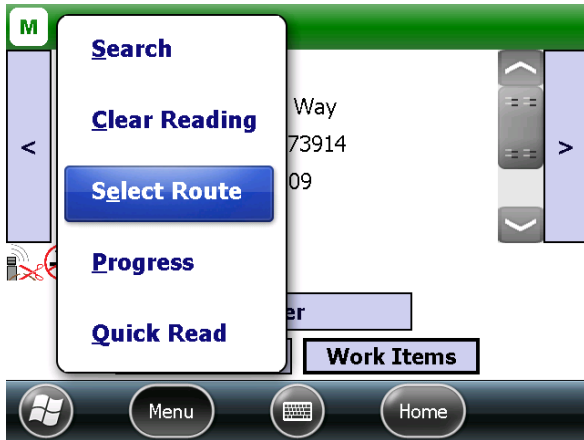   *Result: The route you selected is shown with a check mark* ✅ *as in* Figure 27.

Figure 26: Menu> Select Route
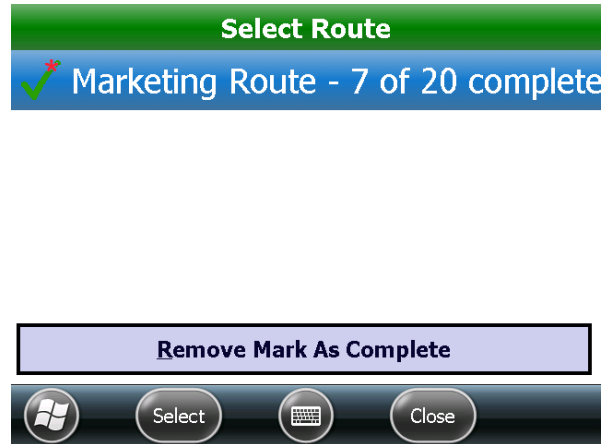
Figure 27: Route marked complete

To remove the route complete mark, follow steps 5 - 7.

5. To remove the complete mark, tap **Remove Mark as Complete**.
6. On the confirmation screen, tap **Yes** to clear the mark.

   Result: The check mark ✅ *is removed from the route.*
7. Tap **Close** to return to the account read screen.

Reader Codes, Trouble Codes, Comments

The **Messages** button on the account read screen is used to create and view messages related to the account. Messages include Reader Codes, Trouble Codes and Comments. Tap the **Messages** button on the account read screen to display the Messaging screen as shown in *Figure 28*.

Add, edit and delete Reader Codes, Trouble Codes or text messages on the Messaging screen.

- Reader Codes are predefined messages from RDMS that are used for nonemergency situations. One or more Reader Codes can be added to an account.

- Trouble Codes are predefined urgent messages from RDMS. Only one Trouble Code can be added to an account.

- Comments are text messages that can be created by the meter reader when a Reader or Trouble Code does not fit the situation. Text messages can be alphanumeric with up to 140 characters.

Figure 28: Messaging screen

Add a Message

1. Tap the **Messages** button on the account read screen to open the Messaging screen.
2. On the Messaging screen, tap the **Add/Edit** button.
3. Tap the radio button for *Reader Code*, *Trouble Code* or *Comment* to select the type of message.

   Result: One of the following screens displays, depending on the type of code or message selected. The title bar of the screen displays the selection.
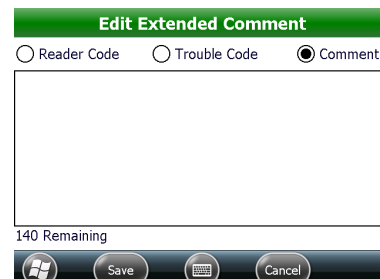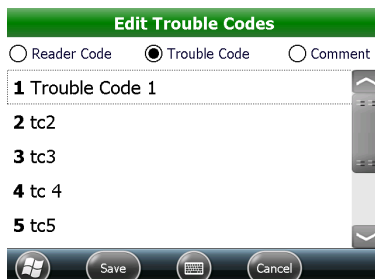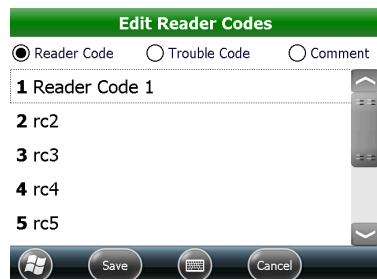

Figure 29: Reader codes, Trouble codes, Comments

- To add a Reader or Trouble Code, tap to select the code. Then tap **Save**.

  Result: The selected code displays on the Messaging screen (Figure 30).

- To add a Comment, tap in the blank field and type a comment using the keypad. Then tap **Save**.

  Result: The Comment displays on the Messaging screen (Figure 30).

NOTE: *Add additional Reader Codes, as needed, by tapping the **Add/Edit** button again. However, only one Trouble Code or Comment can be added.*
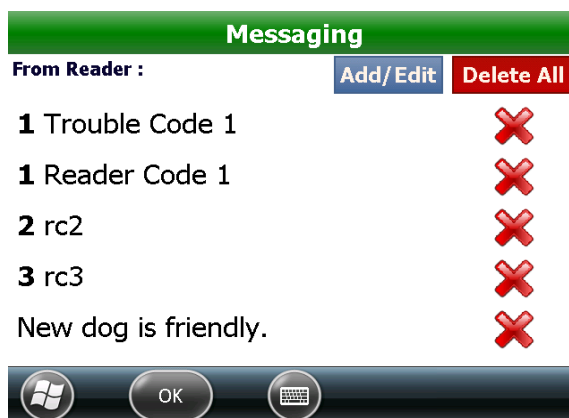

Figure 30: Messaging screen

4. Tap **OK** to return to the account read screen. The message icon displays to indicate a message was created.

Edit a Message

1. Tap the **Messages** button on the account read screen to open the Messaging screen.

2. On the Messaging screen, tap the code or comment you want to change.

   Result: The Edit screen opens for the code or comment you selected.

3. Choose another code or edit the comment, as needed.

4. Tap **Save**.

   Result: Changes are reflected on the Messaging screen.

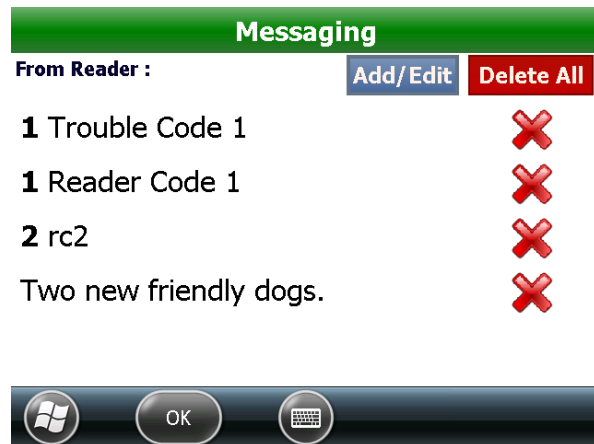5. Tap **OK** to return to the account read screen.

Figure 31: Edit message screen

Delete a Message

1. Tap the **Messages** button on the account read screen to open the Messaging screen.

2. On the Messaging screen, tap the **X** next to the code/comment you want to delete
   or
   tap **Delete All** to remove all codes/comment.

   Result: A screen opens, asking you to confirm the deletion.

3. Tap **Yes** to remove the codes/comment.

4. Tap **OK** to return to the account read screen.

NOTE: The message icon will no longer display if you delete all codes/comment.
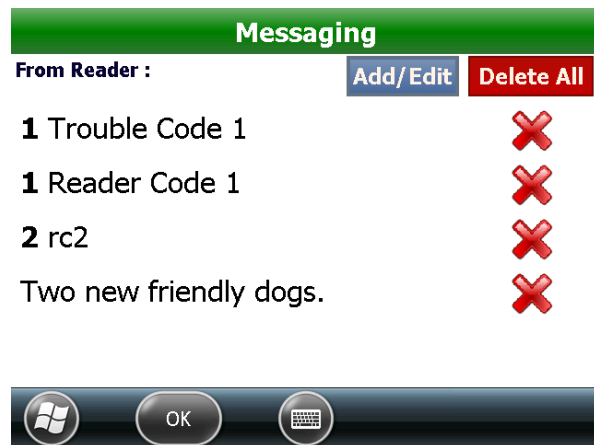

Figure 32: Edit message screen

WORK ITEMS

The account read screen for an ORION Migratable endpoint includes a **Work Items** button.

The **Work Items** button provides access to the two-way communication functionality of the endpoint through which work items are collected.

Work items are used to collect extended status, historical interval data and/or endpoint firmware version from the ORION Migratable endpoints on the route.
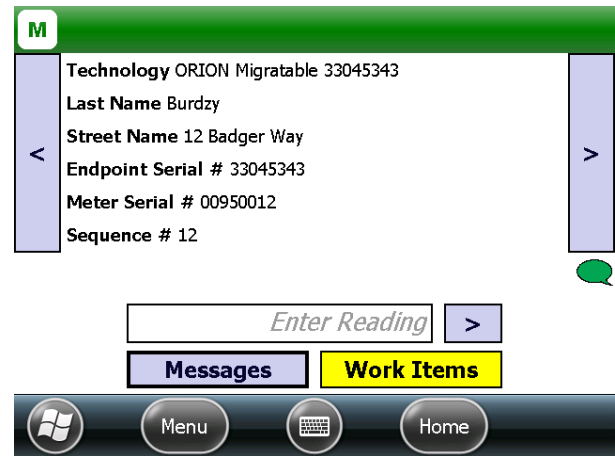

Figure 33: Account read screen with pending Work Items

The button color indicates the work items status. If work items are not assigned in RDMS, the **Work Items** button is blue (*Figure 34*). If work items are assigned in RDMS but not completed, the **Work Items** button is yellow (*Figure 35*). After a reading is received and work items are complete, the button is green (*Figure 36*).

Figure 34: Work items not assigned

*Figure 35: Work items assigned and pending*

Figure 36: Work items complete

Work Items File

Work items are collected as part of the route. The information collected is stored with the route reading information and sent back to RDMS in the UNLOAD folder.

Work Items Screen

Tap the **Work Items** button on the account read screen to display the Work Items screen. The screen has three options:

- **Extended Status**

- **Firmware Version**

- **Historical Interval Data**
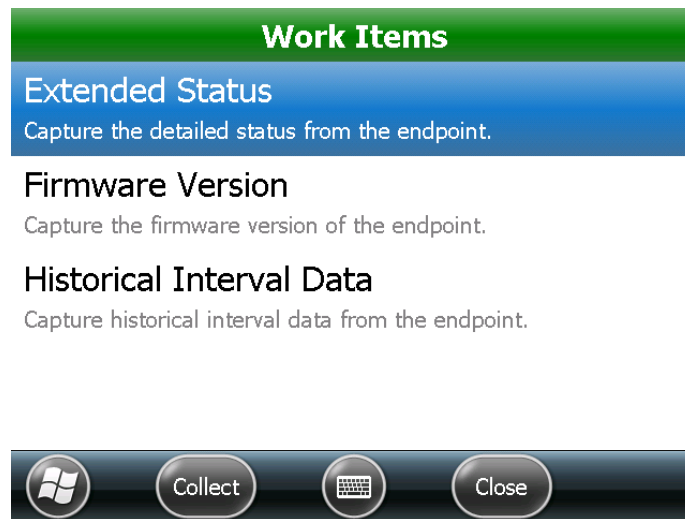
Figure 37: Work Items screen

Requesting Extended Status Manually

Extended status is additional information programmed into an endpoint, including meter type and size, unit of measure and encoder type, as well as exception statuses, such as tamper and no usage. Perform the following steps to manually initiate a request for extended status from an ORION Migratable (or Fixed Network in mobile mode) endpoint.

1. Tap the **Work Items** button on the account read screen for an ORION ME account.

   Result: The Work Items screen opens.

   NOTE: If a work item was set in RDMS to be performed automatically, the message says "Assigned" and the **Collect** button is inactive.

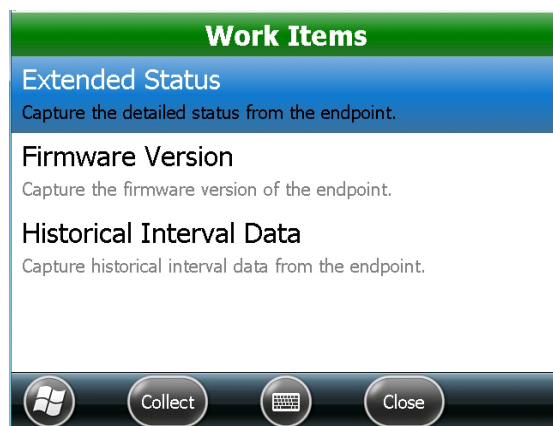2. Tap to select **Extended Status**. Then tap **Collect**.

Figure 38: Extended status

   *Result: "In Process" displays next to the Extended Status field as data collection begins. See Figure 39. "Complete" displays when data collection is finished and the **View** button becomes active. See Figure 40.*
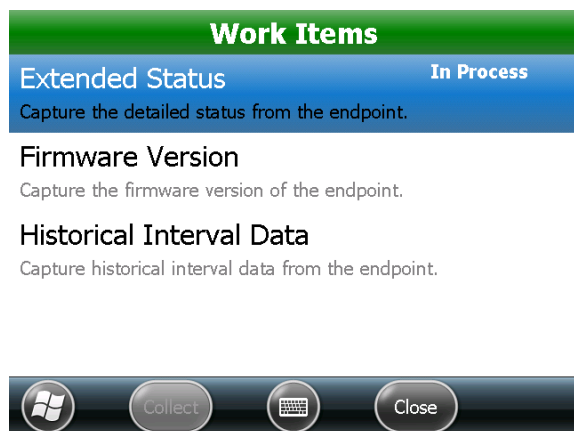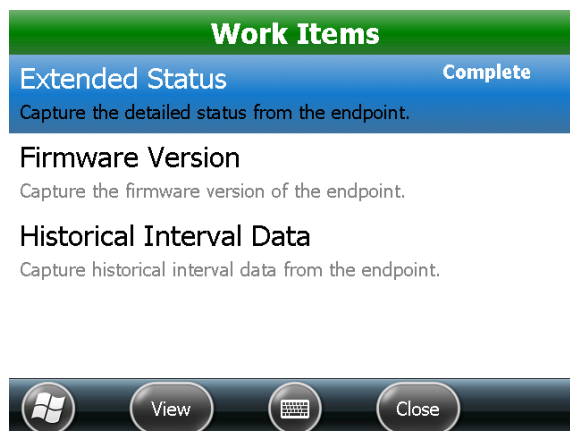

Figure 39: In process

Figure 40: Complete

3. Tap **View.**

   Result: The Extended Status screen displays with the details of the selected account.

4. Tap **Close** to return to the Work Items screen.
5. Tap **Close** to return to the account read screen.

Figure 41: Extended status details

Requesting Firmware Version Manually

Perform the following steps to manually initiate a request for the endpoint firmware version from an ORION Migratable (or Fixed Network in mobile mode) endpoint.

1. Tap the **Work Items** button on the account read screen for an ORION ME account.

    Result: The Work Items screen opens.

    NOTE: If a work item is set to be performed automatically, the message says "Assigned" and the **Collect** button is inactive.
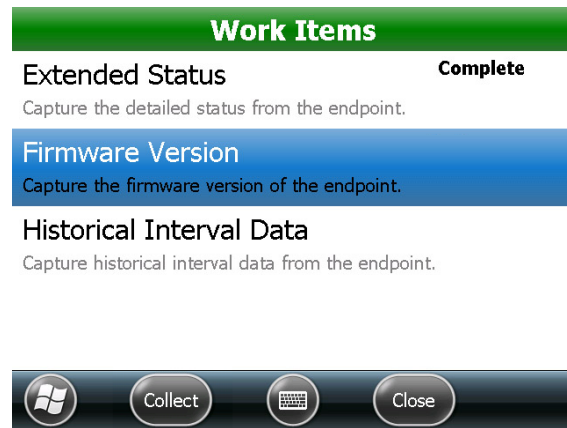

Figure 42: Extended status

2. Tap to select **Firmware Version**. Then tap **Collect**.

    *Result: "In Process" displays next to the Firmware Version field as data collection begins. See Figure 43. "Complete" displays when data collection is finished and the **View** button becomes active. See Figure 44.*
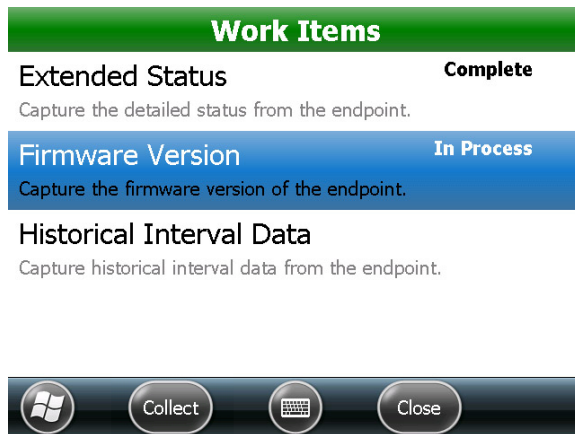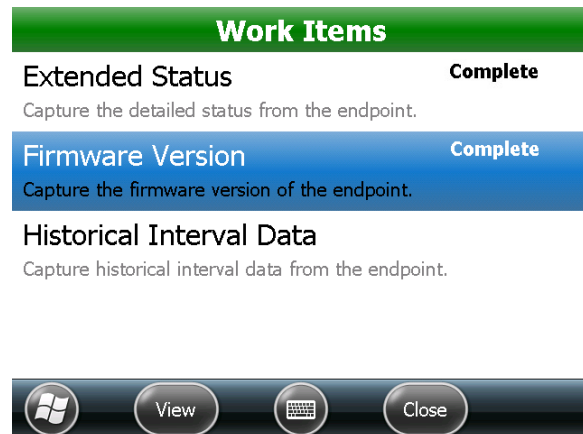

Figure 43: In process

Figure 44: Complete

3. Tap **View.**

    Result: The Firmware Version screen displays with the endpoint firmware version of the selected account.

4. Tap **Ok** to return to the Work Items screen.
5. Tap **Close** to return to the account read screen.

Figure 45: Firmware version results

Historical Interval Data

The ORION Field Application software is capable of extracting historical profile data from an ORION Migratable endpoint at the following intervals:

7 days (Week)   **14 days (Two weeks)**   **30 days (One month)**   **60 days (Two months)**   **All readings stored in the endpoint**
(Shorter months include extra days of readings, up to 30)   (Up to 90 days of hourly readings or 2160 reads)

This chart shows the number of readings collected for meters set at 60 minute (hourly) intervals and at 15 minute (quarter hourly) intervals:

Available Profile Data Extraction Intervals	Hourly Reads: 1 Read per Hour 24 Reads per Day	15 Minute Reads: 4 Reads per Hour 96 Reads per Day
7 days	168 reads (24 x 7)	672 (96 x 7)
14 days	336 reads (24 x 14)	1344 (96 x 14)
30 days	720 reads (24 x 30)	2160 (96 x 22.5)
60 days	1440 reads (24 x 60)	2160 (96 x 22.5)
All/90 days	2160 reads (24 x 90)	2160 reads (96 x 22.5)

NOTE: The ORION Migratable endpoint (or Fixed Network in mobile mode) is capable of holding up to 90 days of hourly interval data, or 2160 hourly reads. If the account is set up to read every 15 minutes – 4 readings per hour – the data extracted reflects four (4) readings per hour and reaches the maximum 2160 reads in 22.5 days (90 days / 4 = 22.5 days).

Requesting Historical Interval Data Manually

If a work item was not assigned by the reading data management operator, you can manually initiate a request for the historical interval data from the current ORION Migratable or Fixed Network (mobile mode) endpoint by performing the following steps.

1. Tap the **Work Items** button on the account read screen for an ORION ME account.

   Result: The Work Items screen opens.

   NOTE: If a work item is set to be performed automatically, the message says "Assigned" and the **Collect** button is inactive.
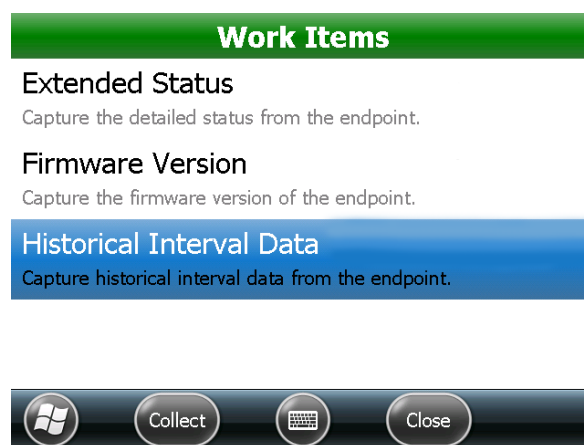
Figure 46: Historical Interval Data

2. Tap **Historical Interval Data**.

   Result: The Select Days to Collect screen opens.

3. Tap the number of days of historical interval data to collect: 7, 14, 30, 60 or All. Then tap **Select**.
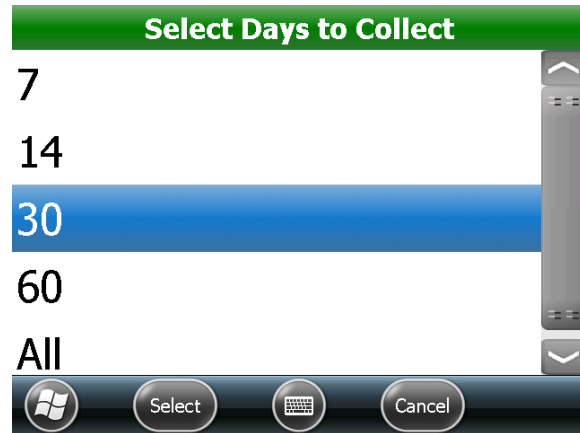

Figure 47: Days to Collect

4. (If not selected in RDMS) The software auto-detects the encoder type and displays the appropriate test circle screen. Use the scroll bar to navigate through the list. Tap to select the meter read resolution for the account.
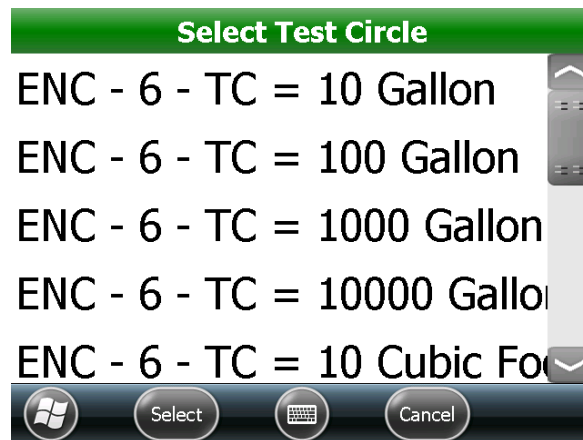

Figure 48: Select the test circle

5. Tap **Select**.

   *Result: The historical data collection process starts automatically. You do not need to tap **Collect**.*

   "In Process" is shown on the Work Items screen next to the Historical Interval Data field. See Figure 49.
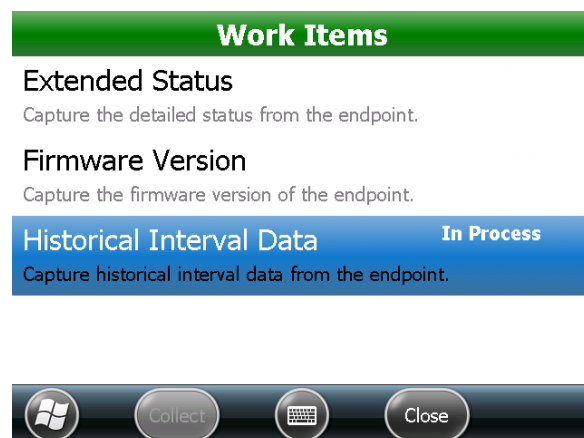

Figure 49: Historical data extraction started

As the data is requested and extracted from the endpoint, a progress bar displays as shown in Figure 50.

"Complete" displays when the historical interval data collection is finished and the **View** button becomes active. See Figure 51.

NOTE: If you receive an error before the process completes, change your position and try collecting the data again.
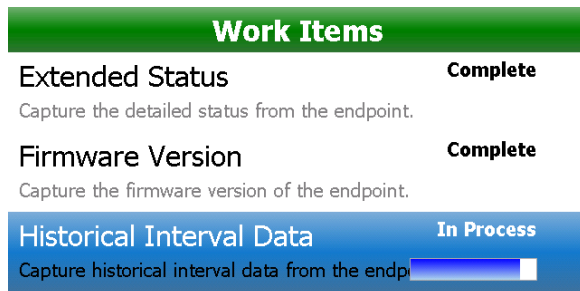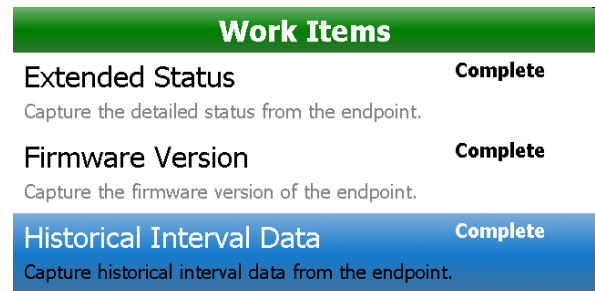

Figure 50: Data collection "In Process"

Figure 51: Data collection "Complete"

6. Tap **View.**
   Result: The Historical Interval Data screen displays with the endpoint historical data for the number of days selected.

- **Date/Time**: The start and end dates and times of the data extraction.

- **Interval**: 60 or 15 minutes, depending on whether the endpoint is set to read every 60 minutes (hourly) or every 15 minutes.

- **Quantity:** The number of reads extracted.

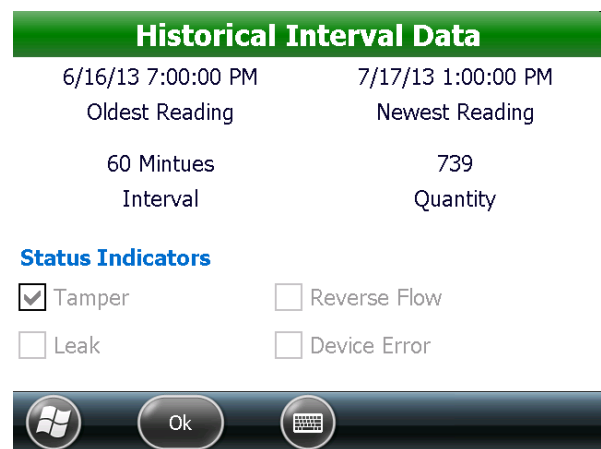- **Status Indicators**: Any alerts found for the period selected.

7. Tap **Ok** to return to the Work Items screen.
8. Tap **Close** to return to the account read screen.

Figure 52: Historical profile data results

SEARCH

The Search screen provides multiple ways to search accounts in the route file(s) loaded on the handheld. The Search function is available during route reading.

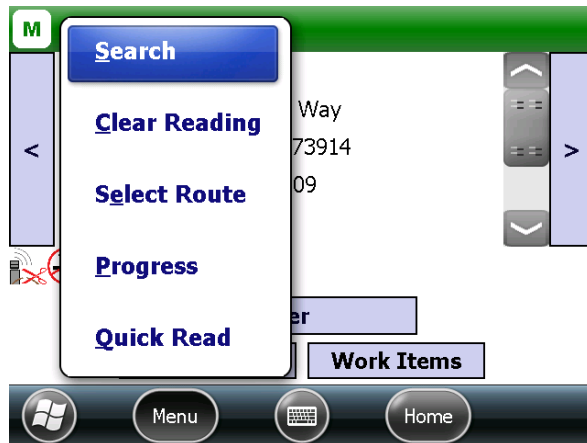On the account read screen, tap **Menu**> **Search** to access the Search screen as shown in *Figure 53*.
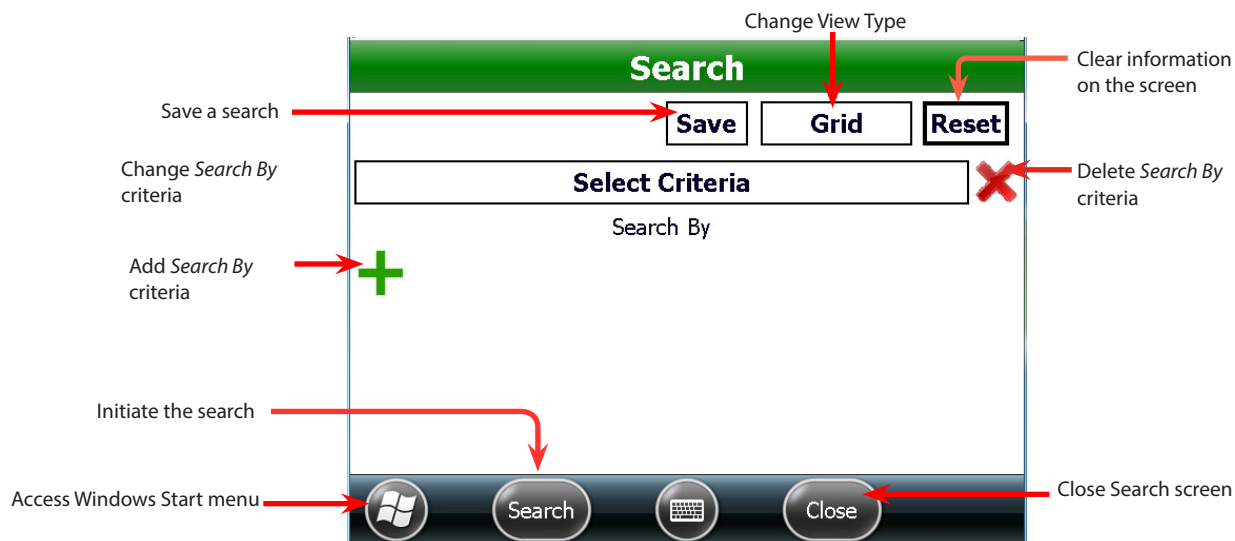
*Figure 53: Select **Menu**> **Search***

Figure 54: Search screen default setting

Search Screen Fields

Save	Used to create and save a frequently used search.
View Type - Grid, List, Paged	The view type button (between **Save** and **Reset)** toggles between **Grid**, **List** and **Paged** view. Tap to select the view. For details, see *"Search View Type" on page 33*.
Reset	Clears the search information on the screen.

> **NOTE:** To clear information in an individual field, Tap the field and press the **CLEAR** button on the handheld keypad.

Select Criteria	The criteria for searching the accounts in the route file. To see a list of the criteria, see *"Search Criteria" on page 34*.

Search View Type

On the Search screen, tap the view type button (between **Save** and **Reset**) to select **Grid**, **List** or **Paged**. This selection determines how the search results will display. Choose the view you prefer, or change the view type to see your search results in different views. Pictured below are examples of the same results in the three view types for a search of *Last Name* that contain the letters "ri."

Figure 55: View type button

NOTE: In all three views, the accounts display in the order they appear in the route.

Grid View: The **Grid** view displays account information in a table or grid format.

When the screen opens, the columns are distributed evenly. To resize and display more or less information in a column, use the stylus to drag a column header. Scroll to see all the accounts.

NOTE: The Grid view shows the most account information per screen.

Figure 56: Grid view

List View: In **List** view, accounts are shown in a list as in *Figure 57*. The endpoint type and serial number is followed by the remaining account information.

Scroll to see all the accounts in the list.

NOTE: A green check mark indicates a read has been received for the account.

Figure 57: List view

Paged View: In **Paged** view, each account displays on a separate "page" and the number of accounts are shown at the top as "x of xx".

To view complete information, tap **Select**. To see another account page in the search, tap **Next**. Tap **Previous** to return to an account page that was already displayed.

Figure 58: Paged view

Search Criteria

Tap **Search Criteria** or tap the *Search By* field to see a list of search criteria.

Figure 59: Criteria to search by

Account field labels sent from RDMS and displayed on the account read screen will also display in the *Search By* criteria. For example, if the Endpoint Serial # is shown on the account read screen, "Endpoint Serial #" will display in the *Search By* list.

The criteria listed below are included in the *Search By* feature.

Bookmarked Search accounts that were previously bookmarked. For more information, see *"Capturing Meter Readings" on page 18*.

Exception Search accounts with exception conditions such as leak, low battery, etc. If *Exception* is selected as the Search criteria, a list of Exceptions becomes available to select from.

Reader Code Search for accounts tagged with a Reader code. If *Reader Code* is selected as the Search criteria, a list of Reader codes becomes available to select from.

Route Allows you to navigate to an account in another route when there is more than one route loaded.

Skipped Search for accounts that have been skipped, which allows the meter reader to return and perform additional actions for those meters.

Trouble Code Search for accounts tagged with a Trouble code. If *Trouble Code* is selected as the Search criteria, a list of Trouble codes becomes available to select from.

Unread Search for unread accounts.

Sequence # Search by sequence number.

Street Name Search for accounts by street name.

Meter Serial # Allows you to enter a specific meter serial number or part of a number.

Endpoint Serial # Allows you to enter a specific endpoint serial number or part of a number.

How to Search

You can search for an account in the route using any of the criteria in the *Search By* field and display the results in three different ways. All accounts loaded on the handheld are searchable.

1. From the account read screen, tap **Menu**> **Search** or press **SS** on the keypad.

   Result: The Search screen displays as shown in Figure 60.
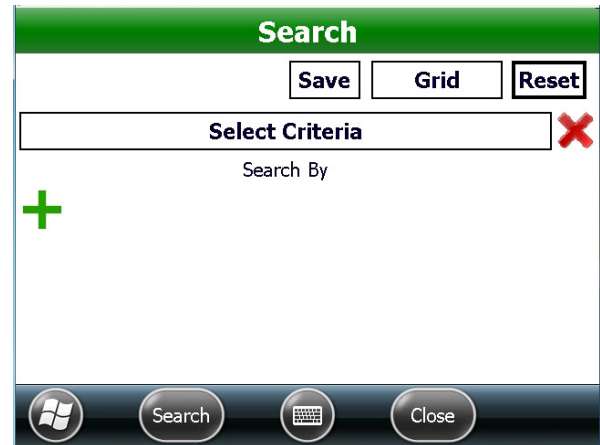
Figure 60: Search

2. Tap the view type button and select **Grid**, **List** or **Paged** view for the search results. See *"Search View Type" on page 33* to see an example of the view type options.

   Result: The Search screen shows the view type you selected.

Figure 61: Address search

3. Tap **Select Criteria** to view the list of search criteria and make a selection.

   NOTE: If this is not the initial search, the screen will default to the last search criteria or the most selected search criteria.

Figure 62: Search screen

4.   Depending on your search criteria, additional fields display as in the example shown in *Figure 63*.
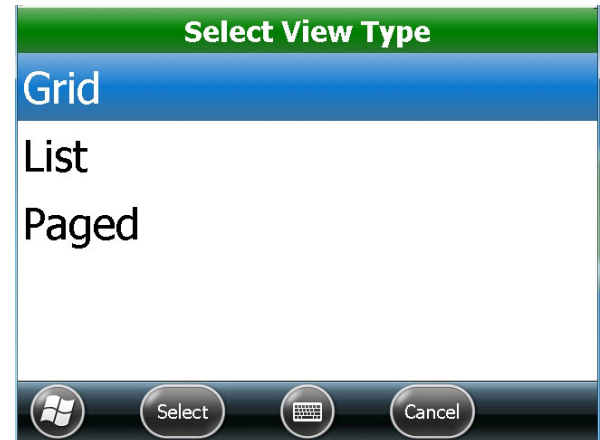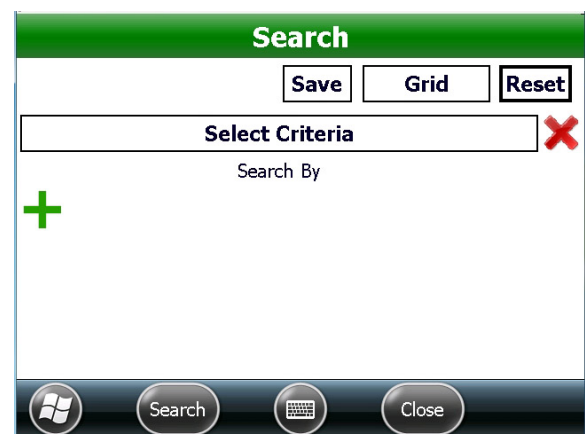
Operator: Tap to select an option: **Contains**, **Starts With** or **Ends With**.

Value: Tap the field to enter a valid value for the search criteria selected.

Invalid Value:
If you do not enter a valid value and you tap **Search**, a message displays to alert you that the Search "contains invalid entries." Tap **Ok** on the message screen to return to the Search screen. The Value field with the invalid information displays in red as shown in *Figure 63*.

Enter a valid search value and tap **Search** again.

Figure 63: Invalid value

In this example, the search is for accounts with a *Last Name* that *Contains* the letters "hi" and the results are to be displayed in *Grid* view type.

Figure 64: Search by Last Name

Last Name	Street	Endpoint	Meter	Sequence
Hitchcock	9 Badger	33073914	00950009	9
Bhiladvala	14 Badger	33026268	00950014	14
Hilton	16 Badger	33022839	00950016	16

Figure 65: Search results grid view

5.   Tap **Search**.

Result: Accounts with Last Names that contain "hi" are shown in *Figure 65*.

6.   To view the account read screen for any of the accounts in the search results, tap to highlight an account and then tap **Select**.

Result: The account read screen for the selected account opens.

Figure 66: Selected account
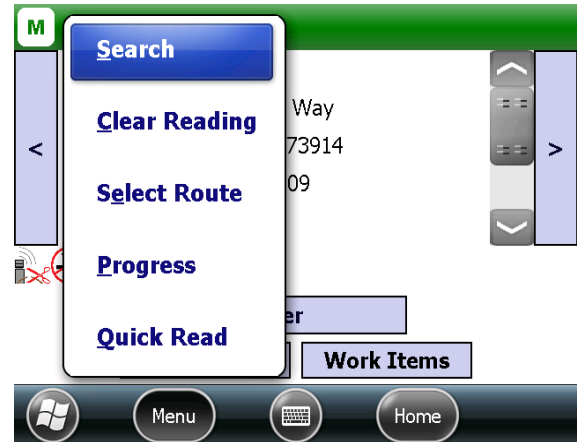
Figure 67: Account read screen menu

7. On the account read screen, tap **Menu**. Then tap **Search** in the menu that displays to return to the Search screen. See .

NOTE: If there are no results for your search, the No Services Found screen displays.

Click **Ok**, change your criteria and search again.
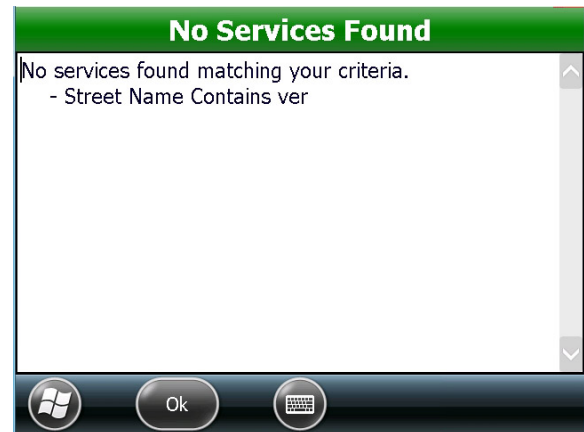
Figure 68: No results

8. To perform another search, tap **Close** on the Search Results screen to return to the Search screen. Then tap the fields to make any changes and tap **Search**.

9. To return to the account read screen, tap **Close** on the Search Results and Search screens.

Exception Search

Using the Search function, you can find accounts with certain exception conditions. Symbols/icons that represent the conditions and display on the screens are shown below. The definition of each exception condition depends on the meter and encoder/endpoint type.

	Encoder Error		Endpoint Programmed
	Potential Leak		Reverse Flow
	Endpoint low battery		Endpoint Tamper
	No usage		

NOTE: To see a list of all status and route icons, go to *"Account Status Icons" on page 88*.

1. On the Search screen, tap the view type button and select **List** view for the search results.
   NOTE: Exception icons do not display in **Grid** or **Paged** view.

2. In the *Search By* field, select **Exception**.

3. Tap the *Value* field, and select an exception value, or select **Any** to search for accounts that have any of the searchable exception values.

Figure 69: Search accounts with exceptions
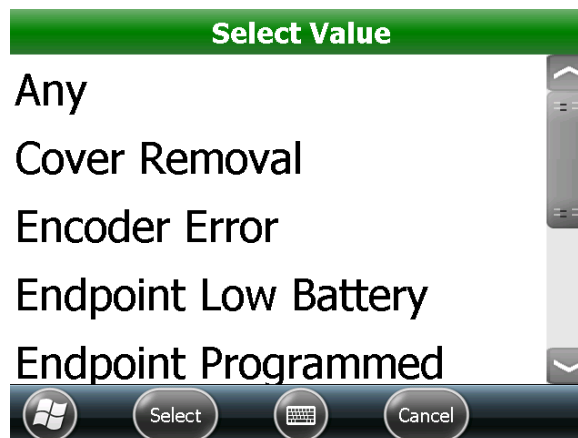
Figure 70: Exception valid values

4. Tap **Search**.

   Result: Accounts in the route with the exception value you selected are displayed.

   Accounts can have more than one exception.

   NOTE: A green check mark indicates a read has been received for the account.

5. Tap **Close** to return to the Search screen.
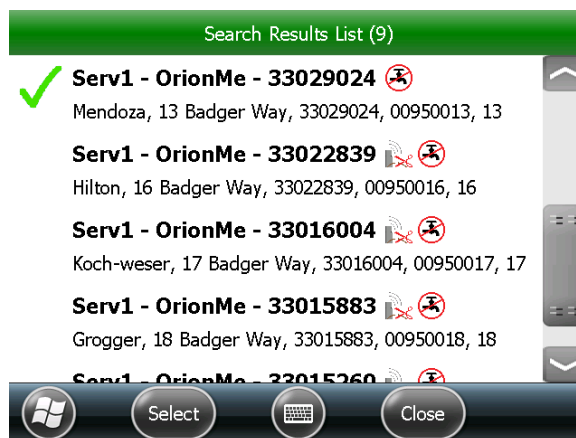
Figure 71: Search results

Multiple Criteria Search

You can add Search Criteria to narrow your search and get to the results you need quickly. This option is useful when looking for a specific account and there are multiple routes with multiple accounts loaded on the handheld.

1. Tap the first *Search By* field to select a search criteria.

    Enter a valid value for any additional fields that display. See step 4 in *"How to Search" on page 35* for more information.

2. Tap the **plus sign** to add a *Search By* field. Select up to three fields, as shown in *Figure 73*.

Figure 72: Search criteria

3. Make sure to enter valid values for each search criteria.

4. When all the *Search By* fields are complete, tap **Search**.

    Result: The search results display based on the criteria you entered.

    NOTE: To remove a *Search By* field, tap the **X** next to the field.

Figure 73: Three Search Criteria

Saving a Search

The software allows you to save a search. This option saves time for a search you perform frequently.

1. From the Read Menu, tap **Search**.
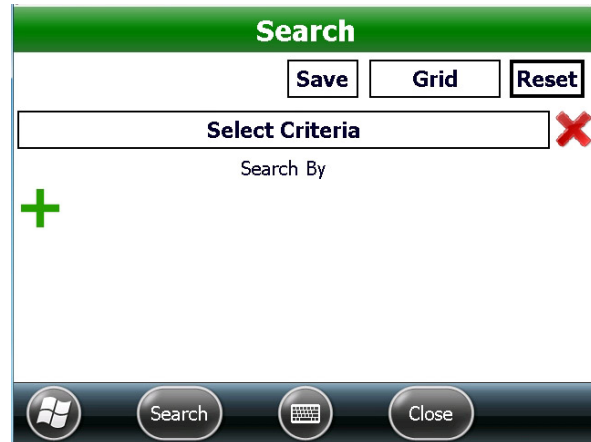
Figure 74: Search screen

2. Select the view type for the search results: **Grid**, **List**, **Paged**.

3. Choose the *Search By* criteria.

    Enter valid values for the *Search By* criteria. See step 4 in *"How to Search" on page 35* for more information.

4. Tap the **Save** button.

5. You will be prompted to enter a name for the search. Enter a descriptive name and tap **Ok**.

    *Result: The search is saved and the **Select Saved** button displays on the Search screen.*

Figure 75: Create the search

NOTE: The **Select Saved** button will display each time you search until the saved search is deleted.

Figure 76: Name the Search
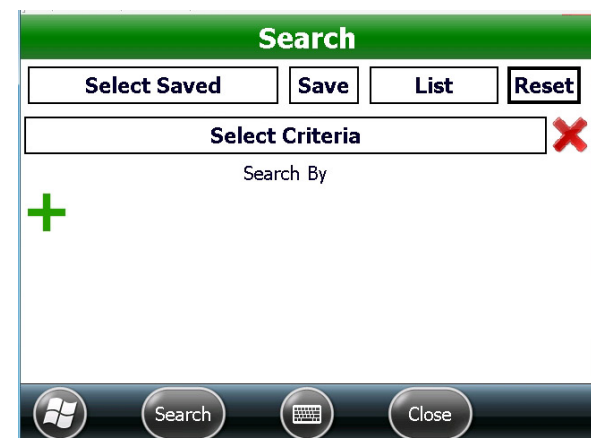
Figure 77: Select Saved button

6. To search using a saved search, tap the **Select Saved** button.

   Result: The Select Saved Search screen opens and displays a list of saved searches.

7. Tap the saved search you need.

   Result: The saved search displays on the Search screen as shown in Figure 79.
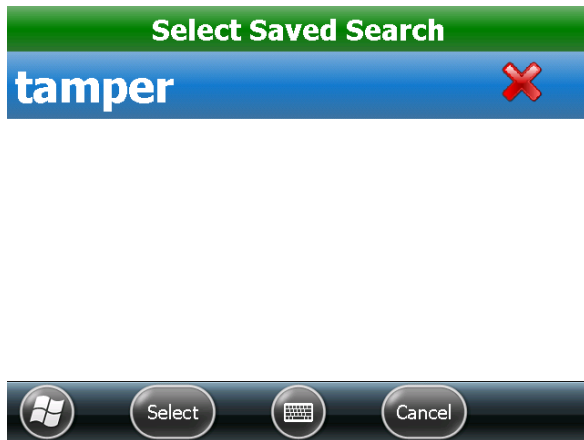
Figure 78: Saved search list

Figure 79: Search screen with saved search

8. Tap **Search**.

NOTE: The **Select Saved** button will display each time you search unless the saved searches are deleted.

Deleting Saved Searches

NOTE: This procedure is not available in Kiosk mode.

1. On the Search screen, tap the **Saved Search** button.

2. On the screen that displays, tap the red **X** next to the search you want to delete.
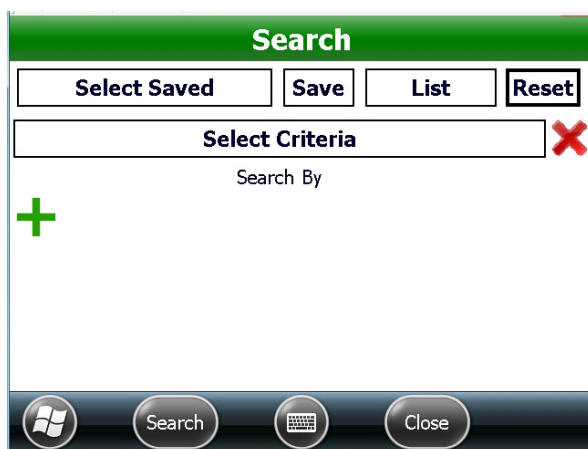
Figure 80: Select Saved
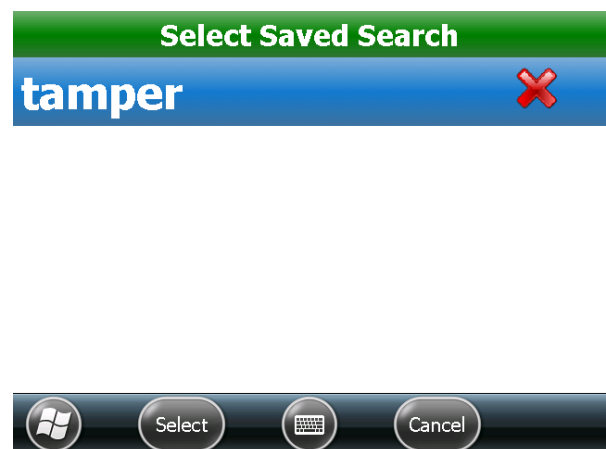
Figure 81: Tap to select

3. When the confirmation window opens, tap **Yes** to confirm the deletion.

   Result: The saved search is deleted and you are returned to the Search screen.

QUICK READ

While route reading, you can select **Quick Read** to listen for all ORION endpoints within radio range for which the handheld is configured.

NOTE: To perform a VersaProbe touch pad Quick Read, see *"Versa Probe Quick Read" on page 47*.

Readings received during a Quick Read will automatically update the appropriate account in the route.

NOTE: If you are programming ORION endpoints (v. route meter reading), exit the ORION Field Application and use the ORION Endpoint Utility software for Quick Reads. Go to **Badger Meter Applications**> **ORION Endpoint Utility**. See *"Program Startup and Exit" on page 9* if you need help.
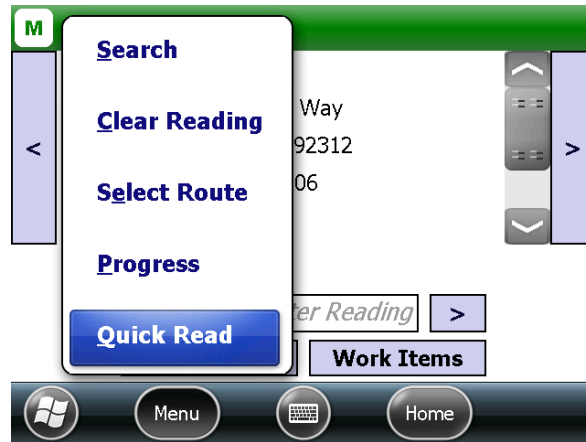
Figure 82: Account read screen menu - Quick Read

Performing a Quick Read

Quick Read-All

1. On the account read screen, tap the **Menu** button and select **Quick Read**.
   Result: The ORION Quick Read-All screen opens.

Figure 83: Quick Read - Migratable

Figure 84: Quick Read - Migratable and Classic

The Quick Read starts automatically for the endpoint type(s) configured on the handheld. In *Figure 83*, the software is reading Migratable endpoints. In *Figure 84,* the software is reading both Migratable and Classic endpoints.

2. Tap **Reset** to clear the screen and restart the Quick Read.
3. Tap the **Back** button to return to the account read screen.

Quick Read - Paged View

1. On the ORION Quick Read - All screen, tap **Paged**. (The **Paged** button toggles to **List**.)

   Result: In Paged view (Figure 85), each endpoint displays on a separate "page". RSSI—a visual indicator of received signal strength between the endpoint and the handheld—also displays.

2. Tap **Previous** or **Next** to view another endpoint.

3. Tap **List** to return to the ORION Quick Read - All list view.

4. Tap **Back** to return to the account read screen.
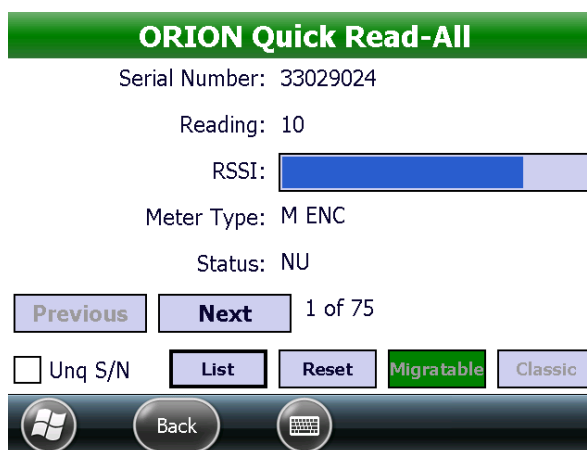
Figure 85: Paged view Quick Read

Quick Read Buttons	Description
Unq S/N	Check the box to display each unique endpoint serial number once. If the box is not checked, serial numbers display multiple times.
Paged/List	Toggles between **Paged** and **List**. Tap **Paged** to see one endpoint per "page". Tap **List** to see a list of all endpoints.
Reset	Clears the current screen.
Migratable	The **Migratable** button is selected when reading ORION Migratable endpoints.
Classic	The **Classic** button is selected when reading ORION Classic endpoints.

LOAD/UNLOAD

The **Load/Unload** option from the ORION Field Application main menu is used for loading route files to the handheld or unloading route files from the handheld.
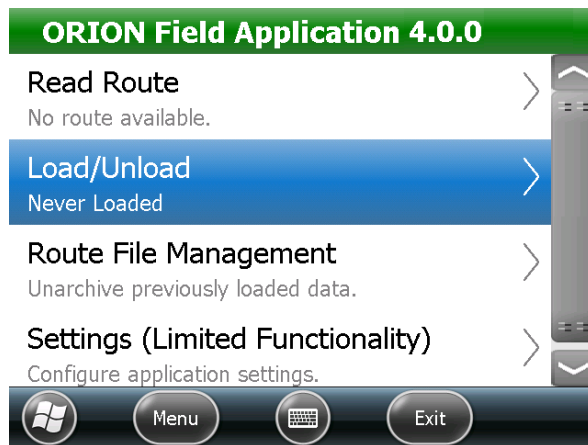
Figure 86: Main menu: Load/Unload

Files are loaded to the handheld prior to route reading. For details, see *"Loading and Unloading with Memory stick" on page 92.*

Wireless Load and Unload

The Trimble Ranger 3 supports wireless route load and unload procedures. For complete information, refer to the *ReadCenter Wireless Load/Unload,* available at *www.badgermeter.com*.

ROUTE FILE MANAGEMENT

Choose **Route File Management** from the ORION Field Application main menu to manage route file(s) currently on the handheld or previously loaded files.
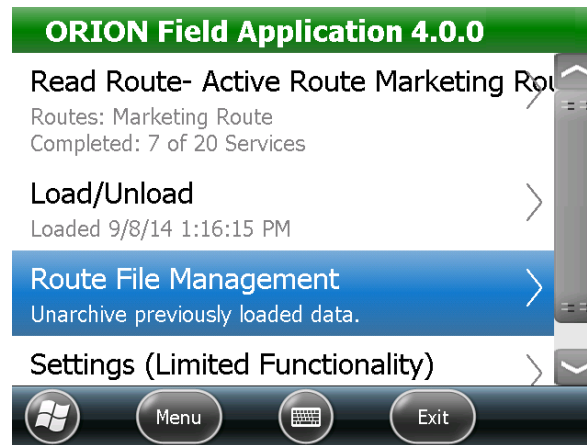
Figure 87: Main menu: Route File Management

Route File Management includes two options: **Unarchive Previous Unload** and **Clear Collected Data**.

Unarchive Previous Unload

1. Go to **Route File Management**> **Unarchive Previous Unload** to see a list of archived routes on the handheld.

2. Tap to select a route you want to restore. Then tap **Ok**.

   Result: The route becomes available again.
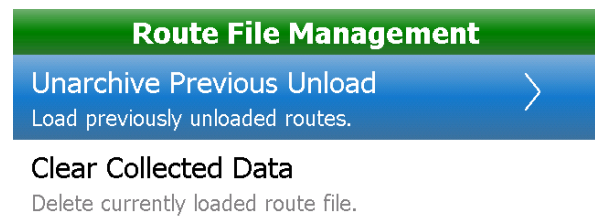
Figure 88: Unarchive a route from the archive

Clear Collected Data

⚠ WARNING

CLEAR COLLECTED DATA DELETES ALL ROUTE INFORMATION. THE INFORMATION CANNOT BE RECOVERED.

1. Go to **Route File Management**> **Clear Collected Data**.

2. On the confirmation screen, tap **Yes** to clear all route information.

Clear Route Warning

Clear Collected Data deletes collected information and cannot be recovered. Are you sure you want to clear the collected data?

Yes   No
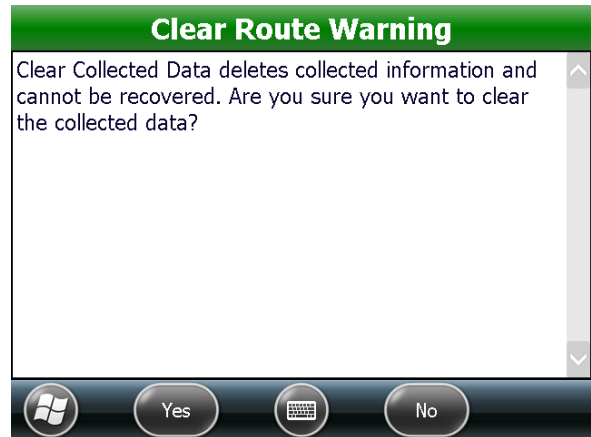
Figure 89: Clear route data warning

VERSA PROBE QUICK READ

Choose **Versa Probe Quick Read** from the ORION Field Application main menu to perform a Quick Read on a touch pad module using a VersaProbe device.

NOTE: This option will only display on the main menu if the VersaProbe is first configured in **Settings**> **Hardware Options**. See *"VersaProbe Touch Pad Reads" on page 19* for instructions.

Figure 90: Main menu: Versa Probe Quick Read

A VersaProbe device can be connected to the handheld serial port or connected via Bluetooth.

NOTE: For information about connecting the VersaProbe to the handheld via wireless Bluetooth connection, see *"Set up the VersaProbe Bluetooth Connection on the Handheld" on page 94*.

Performing a VersaProbe Quick Read

To perform a Quick Read using the VersaProbe, follow these steps.

NOTE: Before performing a VersaProbe Quick Read, the VersaProbe battery must be charged and the COM port settings must be configured. See *"VersaProbe Touch Pad Reads" on page 19* for additional information.

1. Tap **VersaProbe Quick Read** on the ORION Field Application main menu.

    Result: The VersaProbe screen opens as shown in Figure 91.
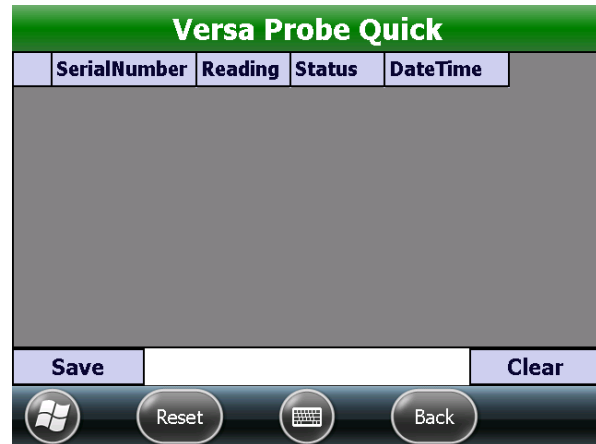
Figure 91: VersaProbe Quick Read screen

2. Align the end of the VersaProbe with the touch pad. Then squeeze and release the trigger to capture the reading.

    Result: The reading is displayed, along with the date and time of the last read, as shown in Figure 92.

    Multiple reads can be captured by repeating step 2.

    -   **Save**: Tap to save the reading on the handheld. To see the file, go to **File Explorer**> **My Device**> **Application Data**> **My Documents**> **ORION**.

    -   **Clear**: Tap to clear the readings on the screen.
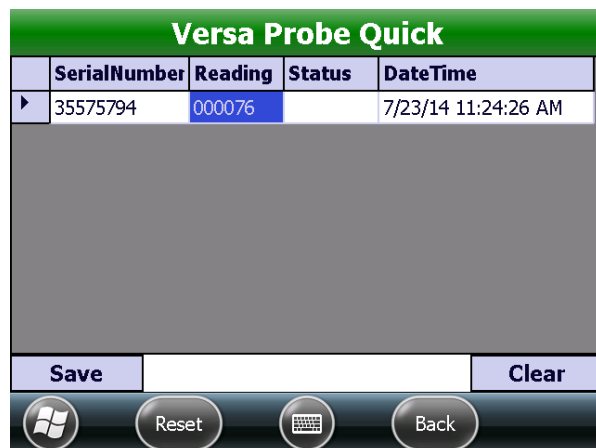
Figure 92: Quick Read completed

3. Tap **Back** to return to the ORION Field Application main menu.

SETTINGS

Choose **Settings** from the ORION Field Application main menu to select or change the COM ports, handheld settings and/or user preferences associated with route reading.
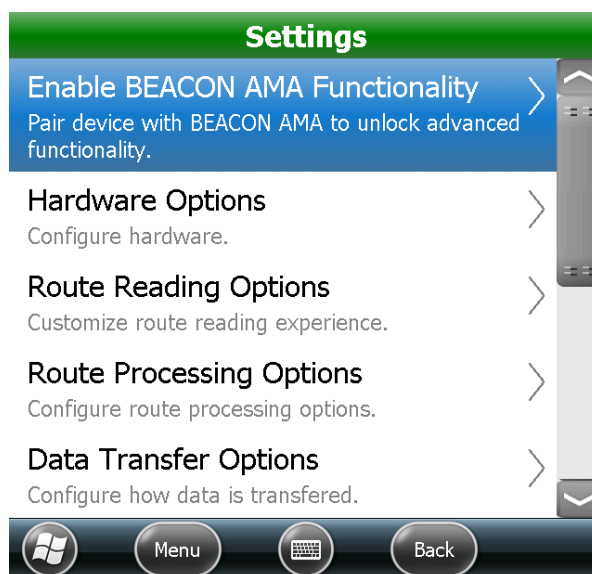
Figure 93: Settings menu

The Settings menu options are listed here.

Enable BEACON AMA Functionality	Associate the handheld with BEACON AMA software. This option is for BEACON AMA users only.
Hardware Options	Add and remove hardware devices, and set communication (COM) ports for any devices attached to the handheld.

IMPORTANT

The COM port(s) must be set correctly for the handheld and software to operate correctly.

Route Reading Options	Choose settings that customize route reading. This option has multiple selections including settings that allow you to choose which items display on the screen, the order they display and the size of the text.
Route Processing Options	Choose settings that configure route processing options such as high/low values, skipped accounts and boundary alerts.
Data Transfer Options	Select the method by which you load and unload route files to and from the handheld. This option is also used to assign a name to the handheld when FTP is used to transfer data. See *"Data Transfer Options" on page 60*.

Hardware Options
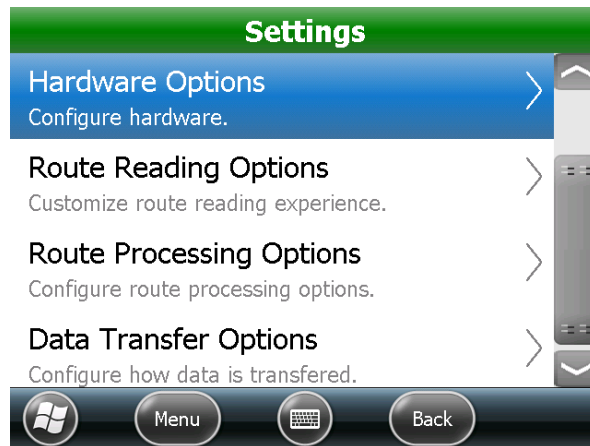
Figure 94: Settings: Hardware Options

Select **Hardware Options** from the Settings menu to view and change the communication (COM) ports for the handheld and add or remove a device attached to the handheld.
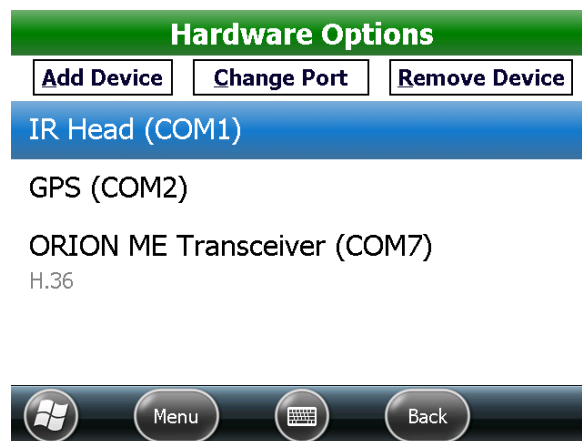
Figure 95: Hardware Options screen

Hardware Options Defaults

The Hardware Options screen shows the following defaults, depending on the type of handheld.

- Technology connected to the nine-pin serial port uses COM 1. The default shows the IR Head.

- The built-in GPS on the handheld uses COM 2. GPS does not display if the handheld does not have internal GPS.

- The internal technology on the handheld uses COM 7.

Reset Defaults

To quickly reset the factory default settings after making changes to Hardware Options, press the **CLEAR** key and respond **Yes** when asked if you want to return to the default Hardware Options settings.

Add Device

1. On the Hardware Options screen, tap **Add Device**.

   Result: The Add Device screen opens.

2. Tap **Type** to see a list of device types. Then tap the device you want to add.

   Result: The device selected is displayed in the Type field. The example in Figure 96 shows the ORION CE Receiver was selected.

3. Tap **Port** to set the COM port for the device you added in step 2.

   Result: The COM port selected is displayed in the Port field. The example in Figure 96 shows COM 1 was selected.

4. Tap the **Save** button.

   Result: The Hardware Options screen displays showing the device and COM port you added (Figure 97).

5. Tap **Back** to return to the Settings screen.
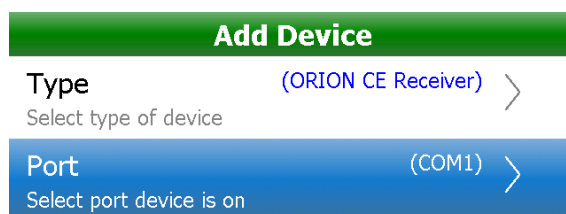
Figure 96: Device type and COM port selected
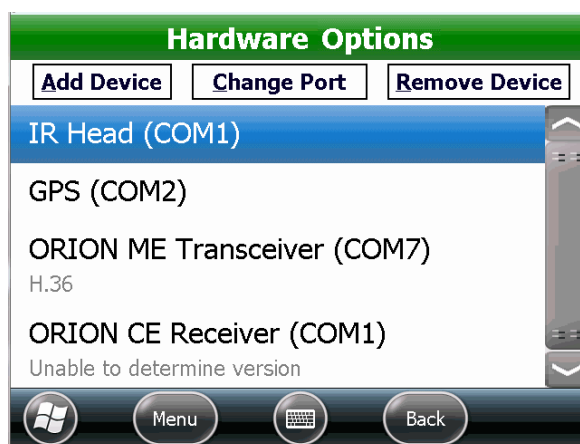
Figure 97: Device and COM port added

Change Port

NOTE: Adjustments to the COM ports should be made only with the assistance of Badger Meter Technical Support.

1. On the Hardware Options screen, tap to select the hardware you want to change. Then tap **Change Port**.

   Result: The COM port selection screen opens. The title bar shows the device you selected. In Figure 98, the ORION CE Receiver was selected.

2. Tap to select the COM port from the list. The COM port change is made automatically and displays on the Hardware Options screen.

   If you do not want to change the COM port, tap **Cancel** to return to the Hardware Options screen.

3. Tap **Back** to return to the Settings screen.
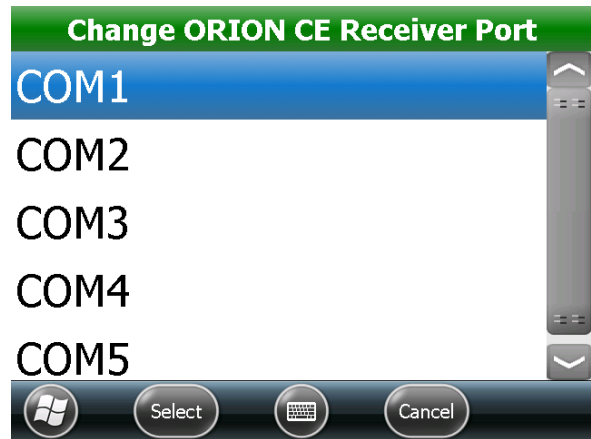
Figure 98: Select type of device

Remove Device

Access **Settings> Hardware Settings** from the *ORION Field Application* main menu.

1. On the Hardware Options screen, tap to select a device you want to remove. Then tap **Remove Device**.

   Result: A screen displays as shown in Figure 99, asking for confirmation.

2. Tap **Yes** to remove the device. Tap **No** to return to the Hardware Options screen.

   Result: The device is removed from the list on the Hardware Options screen.

3. Tap **Back** to return to the Settings screen.
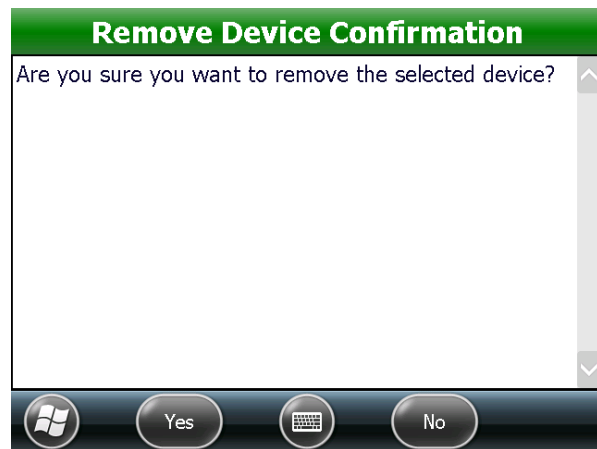
Figure 99: Remove device

Route Reading Options

Select **Route Reading Options** from the Settings menu to view and change the settings that customize route reading. Each option is described in this section.

Figure 100: Route Reading Options

Comment Display Options

Tap **Route Reading Options> Comment Display Options** to see the menu on the Comment Display Options screen.

The Comment Display Options screen allows you to choose how alerts display during route reading.

Display messages from RDMS
When selected, the alert automatically displays in a popup when navigating to an account that has an alert.

- Auto Display Alert Code

- Auto Display To Reader Message

Display for manual reads
When selected, the alert displays in a popup when the condition occurs on an account with a manual reading.

- Display No Usage Alert Dialog

- Display Reverse Flow Alert Dialog

Tap the box next to the option to select it.

NOTE: You can select any or all options.

Tap again to remove the check mark and deselect the option.

Figure 101: Comment Display Options

Display Fields Options

Tap **Route Reading Options> Display Fields Options** to see the menu on the Display Fields Options screen. The screen has two options:

- Customize Display Fields

- Display Field Font Size

These options for customizing the account read screen are available with BEACON AMA functionality only.

Tap **Back** to return to Route Reading Options.

Display Fields Options

Customize Display Fields
Select the display fields ordering.

Display Field Font Size   (9)
Display Field Font Size

Menu   Back
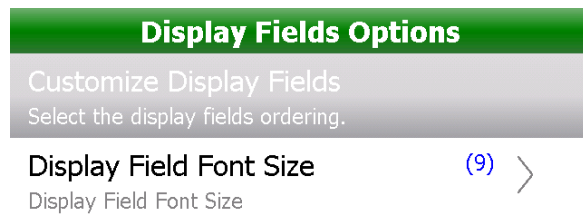
Figure 102: Display Fields Options

Quick Keys

Tap **Route Reading Options> Quick Keys** to define the number of times to press a key when using the keypad Quick Key functions. Your selection displays on the Route Reading Options screen.

For example, the **S** key on the keypad is used to select the Search function. Choose **Single Tap** to press the **S** key **once** to open the Search function. Choose **Double Tap** to press the **S** key **twice** to open the Search function.

Tap **Cancel** to return to Route Reading Options without making a change to Quick Keys.

NOTE: Because the software defaults to **double tap**, all instructions in this manual that describe using quick keys recommend the default—"double tap."

Quick Keys

Single Tap
Double Tap

Select   Cancel
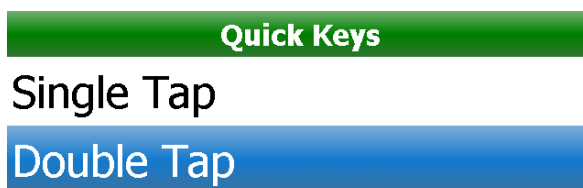
Figure 103: Quick key options

Reading Entry Directions

Tap **Route Reading Options> Directions** to customize the direction of the reading entered for each service type.

Tap **Back** to return to Route Reading Options.
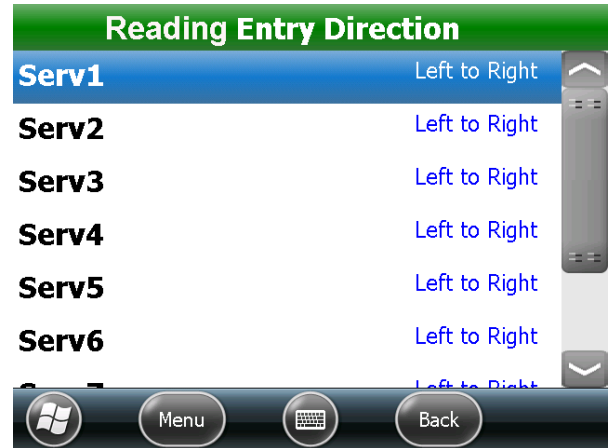
Figure 104: Choose reading entry direction

Show Gas Index Readings

Gas meter readings are typically displayed with subcounts—the numbers to the right of the decimal point.

Tap **Show Gas Index Readings** to show gas readings without subcounts. Tap again to remove the check mark and deselect the option.

Tap **Back** to return to Route Reading Options.

Figure 105: Show gas reads without subcounts

Show Route Complete

Show Route Complete Messages is the last option on the **Route Reading Options** screen.

To show a message for the meter reader when the readings are complete in a route, tap the box next to **Show Route Complete Messages.** Tap again to remove the check mark and deselect the option.

Tap **Back** to return to Route Reading Options.
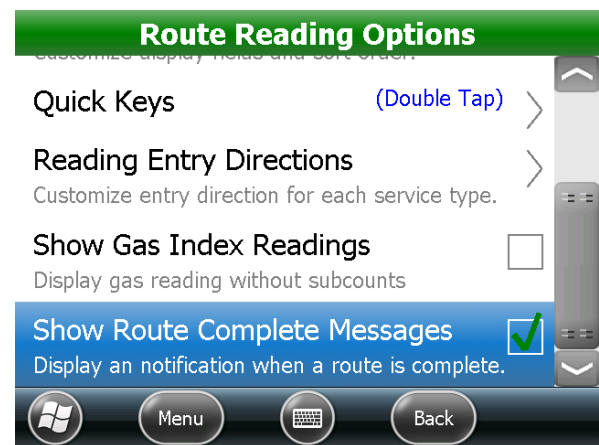
Figure 106: Show route complete messages

Route Processing Options

Select **Route Processing Options** from the Settings menu to view and change the settings that impact route reading. Each option is described in this section.

Figure 107: Route Processing Options

ORION® Field Application 4.0 for Trimble® Ranger 3 with ReadCenter®

High/Low Options

Tap **Route Processing Options> High/Low Options** to view or change the settings that affect high and low values for accounts in the route.

NOTE: This information is password protected.

Tap the box next to an option to select it. Tap again to remove the check mark and deselect the option. The descriptions below explain what occurs when an option is selected.

Advance on High/Low	In auto mode, the software advances past accounts with a high or low reading. A high reading (higher than previous readings) could indicate a leak or unusual consumption. A low reading (lower than previous readings) might indicate a tamper or meter malfunction.
Beep on High/Low	A "beep" sounds when a high or low reading is received.
Show High/Low Values	The high/low values are shown on the account read screen. If the values are set NOT to display by the RDMS operator, changing the option on this screen does not affect the setting.
High/Low Inclusive	The high and low values will signal a High/Low.
Show Previous Read	When selected, the most recent reading in RDMS is shown on the account read screen.
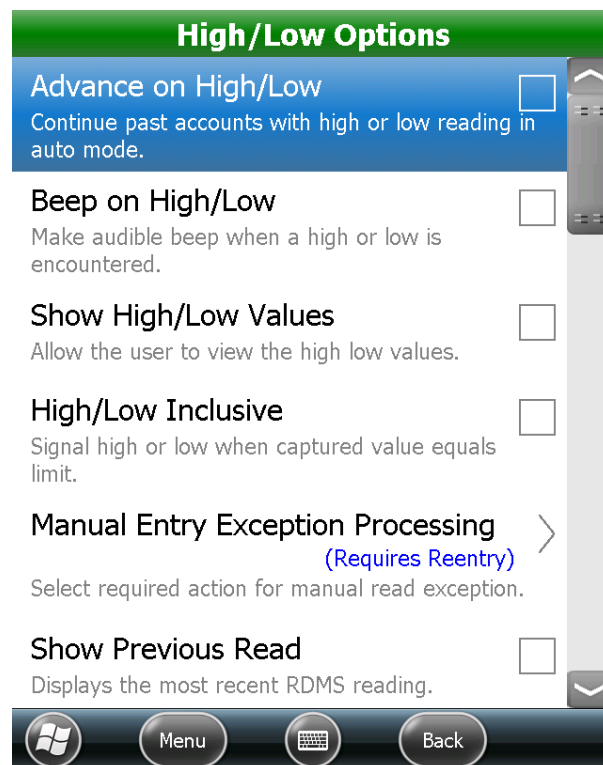
Figure 108: High and low options

Manual Entry Exception Processing

Tap **Manual Entry Exception Processing** to select one of three choices that affect a manual read when it is entered for an account.

Accept Reading	Reading is accepted as entered.
Requires Confirmation	Requires you to confirm the reading after entry.
Requires Reentry	Requires you to enter the reading again.

The option you choose displays on the High/Low Options screen as shown in *Figure 108*.

Tap **Back** to return to Route Processing Options.

Route Boundary Alerts

Tap **Route Processing Options> Route Boundary Alerts** to set a visible message that displays when moving from one route to another during route reading.

Tap the box next to the option to select it. Tap again to remove the check mark and deselect the option.

Tap **Back** to return to Route Processing Options.
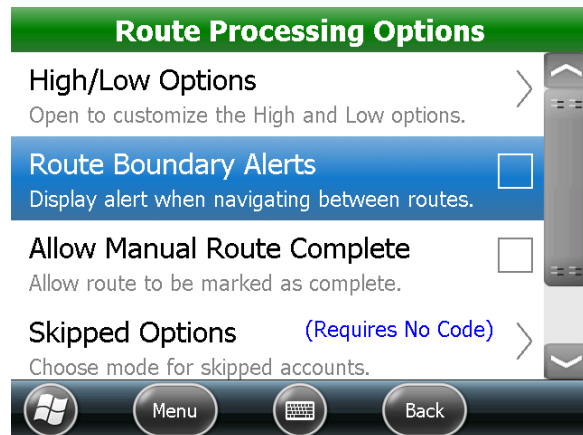
Figure 109: Route Boundary Alerts

Allow Manual Route Complete

Tap **Route Processing Options> Allow Manual Route Complete** to change the route complete setting. When selected, **Allow Manual Route Complete** allows you to mark a route complete.

Tap the box next to the option to select it. Tap again to remove the check mark and deselect the option.

Tap **Back** to return to Route Processing Options.
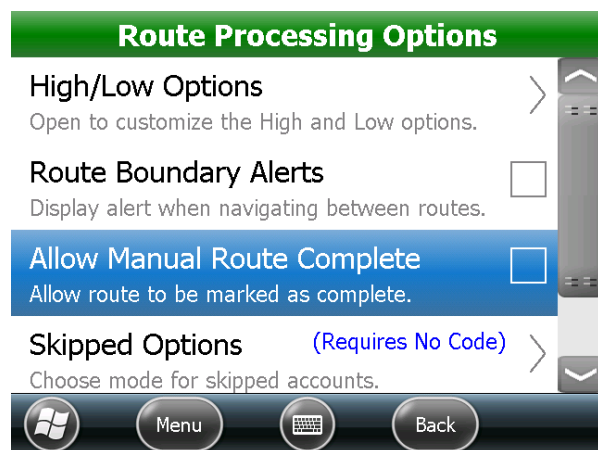
Figure 110: Mark route complete

Skipped Options

Tap **Route Processing Options> Skipped Options** to define the actions required by the meter reader for a skipped account, that is, an account without a reading.

Disabled	Not using skipped account option
Requires No Code	Trouble or Reader codes are not required for a skipped account.
Requires Trouble Code	Trouble codes automatically display when a meter is skipped.
Requires Reader Code	Reader codes automatically display when a meter is skipped.
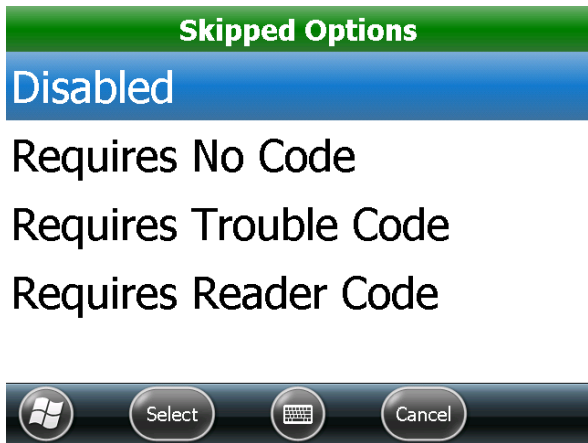
Figure 111: Skipped options

Figure 112: Skipped account

NOTE: To skip an account, press **ZZ** (skip) on the keypad. The account will be skipped unless the Skipped Option is disabled.

The option you select displays on the Route Processing Options screen. See *Figure 110*. A skipped account displays the word "Skipped" in the reading field and the skipped icon displays in the status field as shown in *Figure 112*.

Tap **Cancel** to return to Route Processing Options without making a change.

Route Start Options

Tap **Route Processing Options> Route Start Options** to choose the mode for the route start hot key.

Tap to choose **Start of Route**—the first account in the current route—or **Start of File**—the first account of all routes on the handheld. Your selection displays on the Route Processing Options screen.

Tap **Cancel** to return to Route Processing Options without making a change.
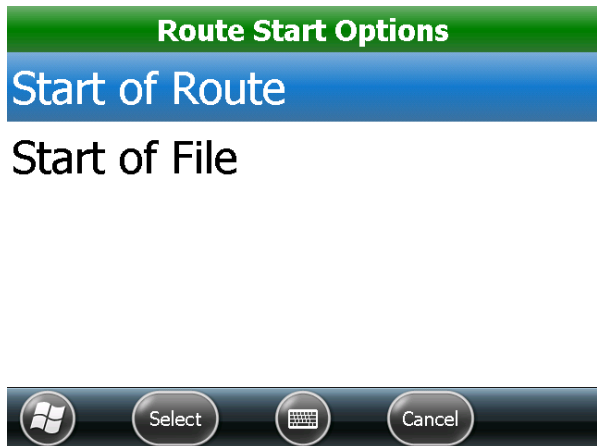
Figure 113: Route Start Options

Data Transfer Options

Use **Data Transfer Options** from the Settings menu to select the method by which you transfer account data route files—load/unload—to and from the handheld or to assign a unique name to the handheld.

NOTE: A password is required to access the Data Transfer Options screen.
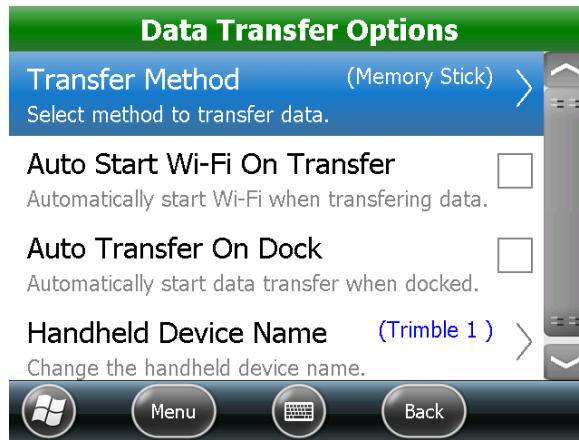
Figure 114: Data Transfer Options

Transfer Method

1. On the Data Transfer Options screen, tap **Transfer Method**.
2. Select the method you want to use to load and unload route files.

Memory Stick	Load route account data using a memory stick (flash drive).
FTP Load/Unload	Load or unload route data, each as a separate process, using FTP.
	NOTE: FTP requires an Internet connection.
FTP Load/Unload Combined	Load and unload route data as a combined process using FTP.
	NOTE: FTP requires an Internet connection.

NOTE: A handheld device name is required if you use FTP. See *"Handheld Device Name" on page 61*.
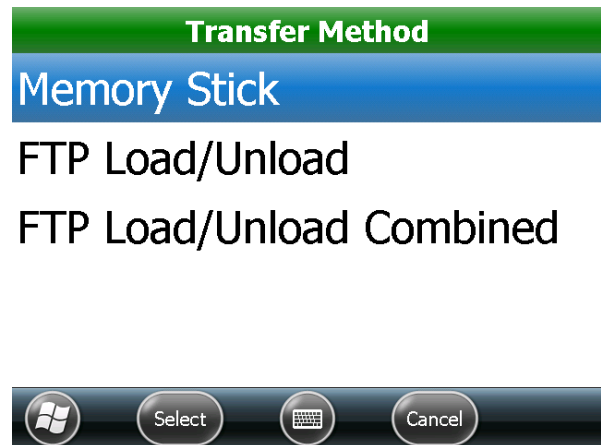
Figure 115: Transfer Method

Result: The Transfer Method screen closes automatically and the method you selected displays in the Transfer Method field on the Data Transfer Options screen. See Figure 114.

Auto Start Wi-Fi On Transfer

Use **Auto Start Wi-Fi On Transfer** to automatically connect the handheld to the Wi-Fi network for data transfer.

This can be done in or out of docking station.

Tap the box next to the option to select it. Tap again to remove the check mark and deselect the option.
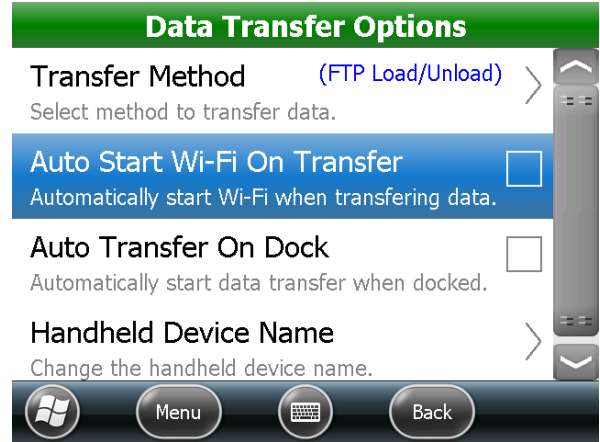
Figure 116: Start Wi-Fi on transfer

Auto Transfer On Dock

Use **Auto Transfer On Dock** to automatically start account data transfer to and from the handheld when the handheld is placed in the office docking station.

Transfer can be performed with a memory stick or using FTP. If transfer is performed with memory stick, the memory stick must be placed in the USB port at the front of the docking station.

Tap the box next to the option to select it. Tap again to remove the check mark and deselect the option.
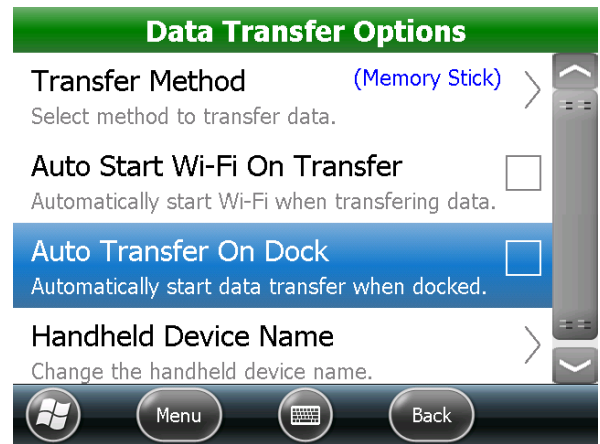
Figure 117: Auto transfer on dock

Handheld Device Name

Select **Handheld Device Name** from the Settings menu to assign or change the handheld name. This setting must be completed if FTP is selected for account data transfer. See *"Transfer Method" on page 60*.

On the Data Transfer Options screen, choose **Handheld Device Name**. Use the handheld keypad to type a name in the *Handheld Name* field. Then tap **Ok**.
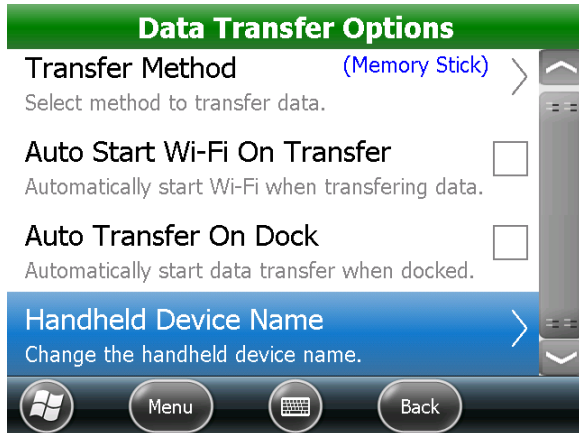
Figure 118: Assign or change device name

Figure 119: Enter device name

Tap **Cancel** to return to Settings without making a change.

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HANDHELD OPERATION

TRIMBLE RANGER 3 HANDHELD OVERVIEW

The Trimble Ranger 3 is a handheld computer designed for fully automated data collection along a route for meters equipped with ORION endpoints. The handheld can also accept manual reads to support utilities as they transition from manual read to AMR technology.

In retrofit installations where matching existing readings is required, the handheld functions as a programming device for initial endpoint setup. The handheld can store up to 5000 accounts per route reading load file. Route reading file load and unload data is transferred between the handheld and the reading data management software via a USB memory drive or wirelessly, depending on the preference of the utility.

Front View   Back View

Figure 120: Handheld outer features

System Components

- Trimble Ranger 3 handheld with touch screen and custom keypad
- Office Docking Station with power cord
- Battery module
- ORION antenna (not included for handheld with no radio)
- AC power supply and international electric outlet adapters
- Stylus – two pack and tether

- Hand strap with stylus pocket
- IR programming cable
- Mini USB cable
- Screen protectors - 15 pack
- Audio jack cover
- USB flash drive

The handheld comes equipped with built-in GPS, WiFi, a bar code scanner, camera and flashlight. Manual handhelds (without a radio) have built-in GPS and WiFi.

NOTE: For a complete list of part numbers and replacement parts for reorder, refer to the *Trimble Ranger 3 Parts List,* available at *www.badgermeter.com*.

Handheld Top View

Figure 121: Top view

Handheld Bottom View
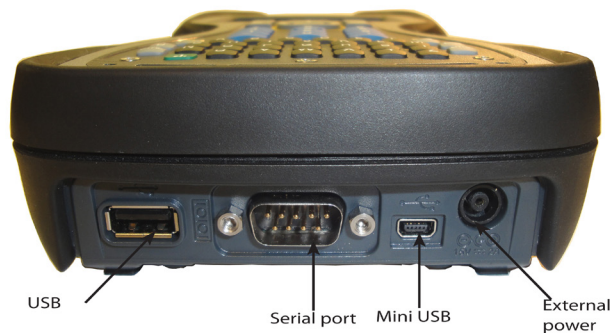
Figure 122: Bottom view

General Care of the Handheld

Use a mild detergent and a clean soft cloth to clean the body of the handheld. Do not use solvents, such as paint thinners. Use only a lint free cloth to clean the infrared port. Do not use detergents or solvents to clean the infrared port or display window.

The Trimble Ranger 3 handheld has a wide operating range of –5...140° F; however, it is important to protect the handheld from extreme temperatures. Leaving the unit in a vehicle on the dashboard during a hot day or in a vehicle on a cold night can affect the screen display, as well as cause battery drainage.

Initial Setup

1. Install the battery.

    The Lithium-Ion (Li-Ion) battery is shipped detached from the unit. Insert the battery at the bottom of the compartment first so the connector on the battery makes contact with the pins in the battery compartment.

    Using the flat end of the stylus or a coin, turn the latch located above the battery clockwise until tightened. As the latch is turned, the battery levels in the case.
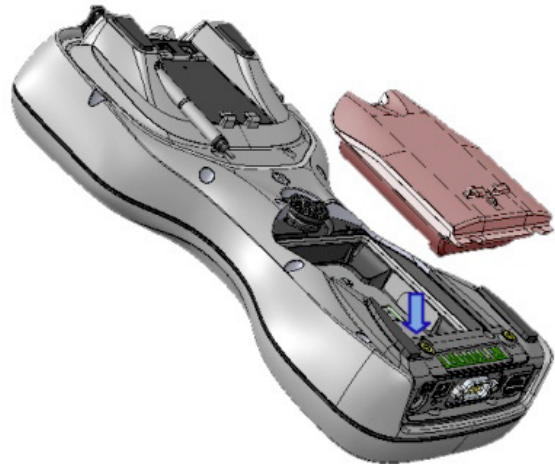
Figure 123: Battery installation

2. Attach the hand strap, starting at the bottom.

    Push the clip of the hand strap into the hooks on the battery door at the bottom of the handheld at a 180 degree angle until it snaps into place.

    Fold the top clip of the hand strap backwards so that it can be pushed into the top hooks of the handheld.

    Pull up on the strap and push the clip into the top hooks at a 180 degree angle until it snaps into place.

    The hand strap is now securely attached.

    ## IMPORTANT

    Make sure to hold the clip straight, parallel to the hooks, and push it in at a 180 degree angle to ensure proper installation.

Figure 124: Installing the hand strap

3. Screw on the external antenna (P/N: 66238-007). If the handheld is not equipped with a radio, skip to step 4.
4. Charge the battery.

    The power supply that ships with the handheld has four international plugs. Connect the appropriate plug to the power cord and attach to the power supply.

    Plug into an electrical outlet and plug the barrel end of the power supply into the unit.

The battery can also be charged using the docking station.

NOTE: For more information on the battery, see *"Working with the Handheld Battery" on page 68*.

IMPORTANT

Fully charge the battery at least 4 hours before use. The battery LED (left LED) will turn green when fully charged. Always use the chargers intended for the handheld. Using other chargers will void the warranty.

5. Attach the I/O dust cover (optional) as shown. The unit is completely sealed, however, the dust cover can be used to protect the connectors from foreign objects.

   NOTE: The dust cover must be removed when using the docking station for charging.
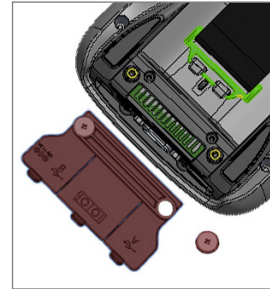
Figure 125: Dust cover

6. Check to make sure a screen protector is applied to the touch screen. A screen protector is applied before shipping.

   The Trimble Ranger manufacturer recommends replacing the screen protector every two months, or more often if the handheld is heavily used.

   Follow the instructions provided in the screen protector package for replacing a screen protector.

Figure 126: Screen protectors

7. Turn the handheld unit on and off.

   The handheld should boot up when the battery is installed. If not, press and release the green power key on the keypad.

   To turn the handheld off, press and release the power key again.

   The handheld is ready to use. Power on the handheld and touch the screen to start using the device.

   NOTE: The COM port(s) must be set correctly for the handheld and the ORION Field Application software to operate correctly. Go to **Settings** on the software main menu to view the COM ports settings and set your user preferences before route reading.

Setting the Password Lock (optional)

It is not necessary to set a handheld password unless unauthorized use is an issue. Badger Meter recommends not assigning passwords to prevent the loss of reading data. If password protection is required, the password must be entered every time the unit is turned on. Use the green power key to resume operation.

Go to **Window Start**> **Settings**> **Lock** to access the password screen.

IMPORTANT

Record your password. A forgotten or lost password cannot be recovered and requires a factory reset. All software and data on the handheld will be lost.

Working with the Handheld Battery

Charging the Battery

The AC charger that ships with the unit has adapters to fit almost every electrical outlet. Connect the appropriate outlet adapter to the AC charger. To charge the battery, plug the AC charger into the charging port on the bottom of the handheld and plug the charger into an electrical outlet.

The handheld is fully charged in approximately 4.5 hours using the AC charger.

Acceptable temperature range for charging the battery is 5...35° C (41...95° F).

Notification LEDs

The handheld has three notification LEDs (light emitting diode) at the top that display color indicators as shown in the table to show the charging status. See the picture of the handheld on page 64 to see the notification LEDs.

Left LED	Center LED	Right LED
Battery Status	OS (Operating System) Status	Bluetooth Status
Green: Fully charged	Red blinking: Alarm	Blue blinking: On
Amber: Charging	WWAN Status	WiFi Status
Red: Battery error	Amber blinking: 2G connection	Amber blinking: On
		GPS Status
	Green blinking: 3G connection	Green blinking: On
		LED will flash in a sequence if multiple features are on

An optional DC charger is also available. Refer to the *Trimble Ranger 3 Parts List*, available at *www.badgermeter.com*, for ordering information.

IMPORTANT

Fully charge the battery at least 4 hours before use. The battery LED (left LED) will turn green when fully charged.

Office Docking Station

When using the handheld docking station (instead of using the AC charger) to charge the battery, be sure the handheld is fully seated into the dock and the charging pins are in full contact with the handheld.

The LED on the right front on the dock is steady green (does not flash) when the power is on and the handheld is docked.

The docking station is designed to be set up on a flat surface or mounted on a wall. Up to five units can be connected together with a single power source.

USB

LED is amber when programmable

LED is green when power is on

Figure 127: Docking station

IMPORTANT

Always use the chargers intended for the handheld. Using other chargers will void the warranty.

Battery Power

When the fully charged handheld is still connected to the charger, verify the handheld battery charge using these steps:

1. Tap the **Windows Start** icon at the bottom left of the display screen.
2. Tap **Settings**> **Power** to view the battery power and the current battery charge status.
3. Tap **Advanced**, next to Battery, to see handheld power down selection options.

Conserving the Battery

The handheld conserves battery power by turning itself off when not in use.

Press and release the green power key on the keypad to turn the unit back on. The display shows the same screen that was displayed when the unit turned off.

NOTE: When the Read or Quick Read screen is in use, the handheld will NOT turn off automatically because the ORION reading functions are active. To conserve the battery, be sure to return to the main menu so the automatic off function is active.

Tips for extending the battery charge

- Tap **Windows Start**> **Settings**> **System**> **Backlight** to select the amount of time the backlight stays on when the unit is idle and the brightness of the display. A brighter backlight uses more power than a dimmer setting.

- Use the backlight only when necessary. Press the **Fn + power** keys to toggle the backlight on and off.

- When working in cold temperatures, keep the unit as warm as possible.

Swapping the Battery Pack (Low Battery)

If the battery becomes depleted while using the handheld, a "low battery message" displays. The battery is designed to be quickly replaced in the field.

The handheld retains enough power and will not reset if the battery is replaced within minutes of total battery discharge. If the retained power runs out before the new battery is installed, the unit resets. The reset does not impact saved data, programs or configuration, however, unsaved data is lost and the handheld date and time must be reset.

To swap a battery, perform the following steps:

1. Close open applications and save data.
2. Carefully remove the hand strap from the back of the handheld.
3. Use the flat end of the stylus or a coin to loosen the latch above the battery by turning it counter-clockwise until the battery module can be removed.
4. Remove the battery from the unit.
5. Quickly insert the new battery into the unit.
6. Turn the latch clockwise to fasten the battery securely into place.
7. Replace the hand strap.
8. Turn the unit on to resume operation.

SD and SIM Cards

The Trimble Ranger 3 supports the use of SD and SIM cards. The slots for both cards are located beneath the plastic regulatory label that can be seen when the battery is removed from the handheld. Neither the SD or SIM card is required for Badger Meter Field Applications.

Handheld Basic Operations

Turning On the Handheld

To turn on the handheld, press the green power key on the keypad. An audible beep sounds and the "booting" message appears.

Power Menu

Hold down the green power key for about three seconds to display a countdown timer.

Release the power key to display the Power Menu.

NOTE: If you continue to hold down the power key, the handheld resets when the countdown reaches zero. See "Restarting the Handheld" below.

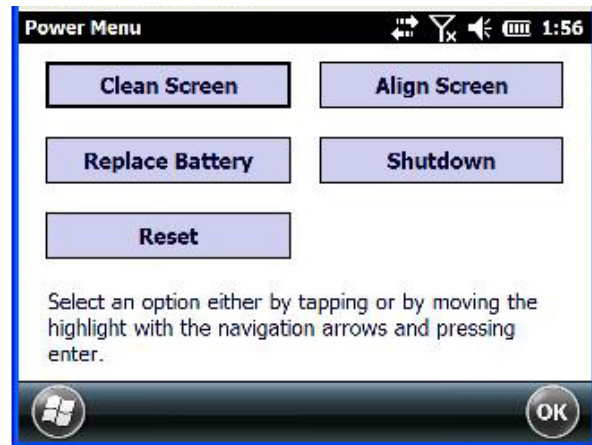Five options are available. Tap the button to select the option.

Figure 128: Power menu

Clean Screen	Disables the touch screen for cleaning. Press the enter key on the handheld keypad to re-enable the touchscreen.
Replace Battery	Ensures that alarms will not wake up the unit while changing the battery.
Reset	Stops all running programs and restarts the unit. Open or unsaved files will be lost. All registry settings, control panel, personal information, GPS settings and databases are preserved.
Align Screen	Repeats the screen alignment procedure for the touch screen.
Shutdown	Intended for long-term storage to put the unit in its lowest power mode. Running application state and unsaved data will be lost. Internal GPS parameters will be reset to their default settings. To take the unit out of the shutdown mode, press the power key and the unit will boot up.

NOTE: The battery LED does not work in shutdown mode, but if the power supply is plugged in, the handheld will still charge.

Turning the Handheld Off

To shut down the handheld, press and hold the green power key until the message "Release power button to use menu" is displayed. When you release the power key, the Power Menu displays. Tap **Shutdown** to power off.

Instant On and Off

When the handheld is in use, one of the features is "instant on" and "instant off" (also known as "suspend/resume"). The handheld will automatically power down ("instant off") when it is not being used. Press and release the green power key to resume use. The screen that was previously displayed will display again. There is no waiting for the unit to boot up every time it is turned on.

Restarting the Handheld

To perform a restart (also called reset), press and hold the green power key. The screen will show a countdown timer. Continue holding the power key until the countdown is completed. The unit will automatically restart. Readings will not be lost if the handheld is restarted using these steps.

Using the Touch Screen

NOTE: This manual provides instructions for touch screen navigation and operation of the handheld. Quick Keys and Hot Keys are keypad shortcuts which also can be used for performing mobile read functions. See *"Keypad Shortcuts" on page 82* for details about using these keypad shortcuts.

In addition to the keyboard, the handheld is equipped with a touch screen to facilitate function selection and promote ease of use. To make a selection, touch the screen using the stylus tool provided with the handheld or simply tap the screen with your finger. The touch screen is sensitive enough to allow screen component selection, even while wearing gloves.

Tap

Use the stylus to navigate and select objects on the touch screen. Single tap on the screen with the stylus to select or open an item. Tapping is equivalent to clicking the left mouse button with a computer.

Tap and Hold

When you tap and hold a point on the screen, a circle of dots appears around the stylus to indicate that a pop-up menu will soon appear. Tap and hold is equivalent to clicking the right mouse button.

Drag

Hold the stylus on the screen and drag it across the screen to select text and images. Drag in a list to select multiple items. Drag the stylus on a scroll bar or on a Windows screen to scroll.

Disable

To disable the touch screen, press the Function key (**Fn**) and the decimal/period key (**.**) on the keypad at the same time.

A message displays as shown in the example here to explain the touch screen is disabled and can be re-enabled by pressing **Fn.** again (*Figure 129*).
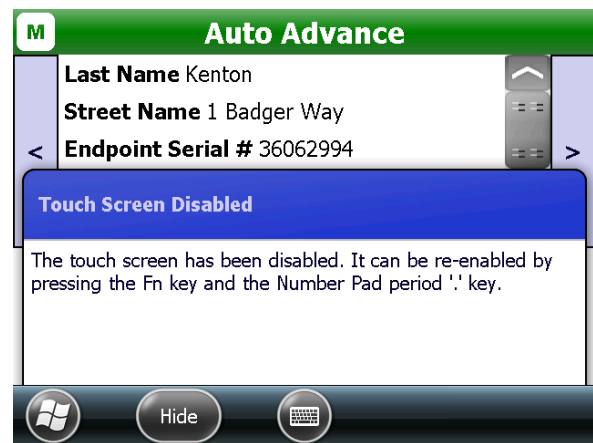

Figure 129: Fn. to disable touch screen

Storage Memory

Unlike many handheld computers which can lose data if they lose power, losing power does not impact saved data or configurations other than the real time clock. All data is stored in non-volatile memory. If the battery is removed for 30 seconds or more, the user is prompted to enter a current time and date. The current time and date must be entered prior to operating the ORION Field Application software.

Using File Explorer to Browse, Delete, Rename, Copy

Browse the contents of folders on the handheld using File Explorer (**Windows Start**> **File Explorer**). To delete, rename or copy an item, touch and hold the item. Then select from the menu that displays.

NOTE: Unlike desktop computers, Windows Mobile® does not support a Recycle Bin. If a file is deleted, it cannot be recovered.

Care of the Touch Screen

Use only the included stylus or other devices designed specifically for use with touch screens. The use of ballpoint pens, nails or other sharp objects to operate the touch screen may scratch and/or damage the unit.

Do not apply any cleaner directly to the display. Do not use any abrasive cleaners as they may scratch the touch screen. Keep the touch screen clean by gently wiping the display, using a soft cloth dampened by clean water. Keep the touch screen clean by gently wiping the display, using a soft, dampened cloth with either clean water or glass cleaner.

⚠WARNING

DO NOT USE ABRASIVE CLEANERS DIRECTLY ON THE DISPLAY. DOING SO MAY VOID YOUR WARRANTY.

Screen Protector

To keep the touchscreen clean and protected, apply the screen protector following the instructions provided in the screen protector package. Unprotected screens become scratched and scuffed over time. Screen protectors extend the life of the display by providing a protective and replaceable barrier between abrasive grit and the surface of the display.

It is recommended to replace the screen protector every two months, or more often if heavily used.

⚠WARNING

FAILURE TO USE THE APPROVED SCREEN PROTECTOR OR FAILURE TO FOLLOW THE INSTRUCTIONS FOR INSTALLATION MAY VOID THE PRODUCT WARRANTY.

Changing the Handheld Date and Time

IMPORTANT

The date and time on the Trimble Ranger 3 handheld must be accurate to ensure communication with the ORION endpoints. Check the date and time and adjust if necessary before reading a route.

To change the time and /or date, follow these steps:

1. Tap the **Windows Start** button at the lower left of the screen.
2. Tap **Settings**.
3. Tap **Clocks & Alarms> Time**.
4. Select the correct time zone, time and/or date by tapping the appropriate field and using the up/down arrows to make any necessary changes.
5. Once finished, tap **OK**.

   Result: A small window opens allowing changes to be saved.
6. Tap **Yes** to save the changes or **No** to close the screen without saving the changes. Tap **Cancel** to return to Clocks & Alarms to make additional changes.

   *Result: The changes are saved when you tap **Yes**. Clocks & Alarms will close and the Settings screen is displayed.*

Barcode Scanner

Depending on the configuration, the handheld may include an integrated laser ID barcode scanner.

NOTE: To be able to use the barcode scanner while the handheld is in Kiosk mode, a shortcut button for using the scanner must be set while in Admin mode before changing to Kiosk mode.

Activating the Scanner

1. Tap **Windows Start**> **Settings** > **System** > **Scanner Setup**.
2. Position the handheld with the top of the handheld pointing toward the barcode you want to scan.
3. Tap **Scan Now** to activate the laser.

    Result: The handheld emits a red laser beam.

    If the scan fails to decode, try moving closer or farther away from the barcode and tap **Scan Now** again.

Programming a Barcode Scan Button

The circle shortcut button can be programmed to act as the barcode scan button.

A button can be programmed for one function only.

NOTE: The buttons on the top row of the handheld keypad (Windows Start, LEFT, RIGHT, CLEAR) cannot be programmed.

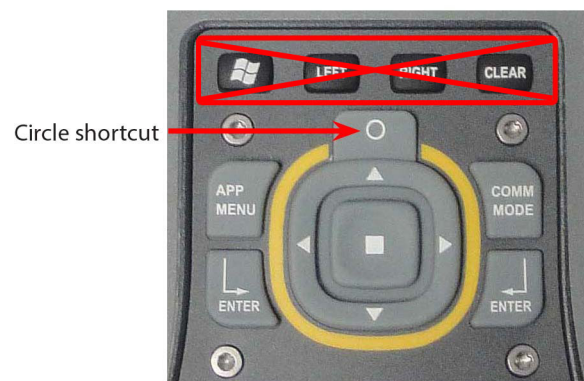Follow these steps to program the circle shortcut button for scanning.

Circle shortcut

Figure 130: Circle shortcut button

1. Go to **Windows Start**> **Scan Agent.**
    Result: Tapping Scan Agent triggers a Warning window opens stating that a button has not been assigned.
2. Tap **ok** to close the Warning window.
3. Follow the instructions from the Warning window and go to **Windows Start**> **Settings**> **Personal**> **Buttons.**

    Result: The Program Buttons screen opens.
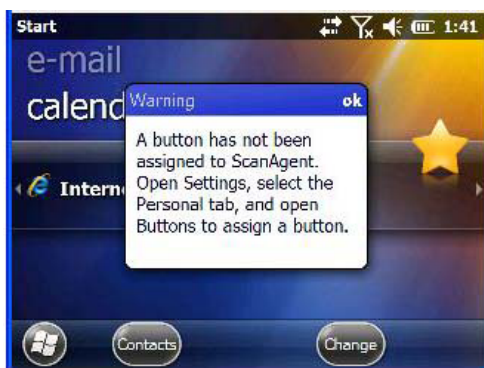

Figure 131: Scan Agent

Figure 132: Warning message

Figure 133: Personal Buttons

4. Tap to select the **Circle Shortcut** button. You may need to scroll to find it.

5. Tap the *Assign a program* field and select **Scan Agent**. You may need to scroll to find it.
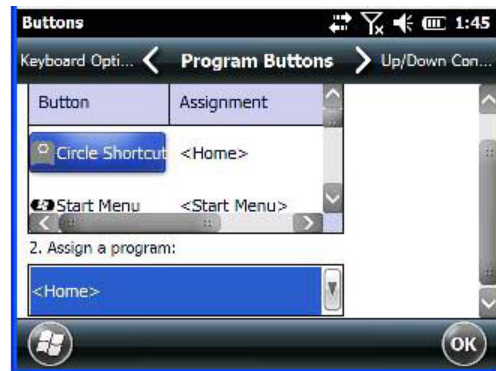

Figure 134: Select Circle Shortcut

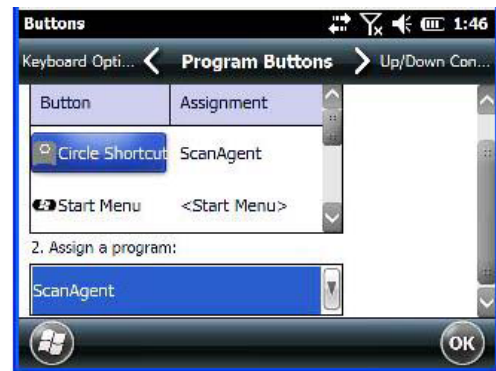*Figure 135: Select Scan Agent*

Figure 136: Tap OK

6. Tap **OK**.

   Result: The circle shortcut button on the handheld keypad is now programmed to scan a barcode when pressed.

   NOTE: The scanner can be used to capture ORION endpoint serial numbers. Due to the design, the scanner will not read the barcode imprinted on the endpoint cover but can be used to read the barcode on the label attached to the endpoint wire.

Circle shortcut

Figure 137: Press circle shortcut to scan

⚠**CAUTION**

AVOID DIRECT VIEWING OF THE SCANNER LASER BEAM. DO NOT STARE INTO IT OR POINT DIRECTLY AT EYES.

Flashlight

Depending on the configuration, the handheld may include a camera. The dual LEDs for the camera flash can also be used as a flashlight.

Tap **Windows Start**> **Flashlight** to toggle the Flashlight on and off.

Figure 138: Flashlight

Programming a Keypad Button for Flashlight

Any of the buttons on the top row of the handheld keypad (**Windows Start, LEFT, RIGHT, CLEAR**) or the circle shortcut button can be programmed to act as the flashlight button.

NOTE: A button can be programmed for one function only.

1. Go to **Windows Start**> **Settings**> **Personal**> **Buttons**.
2. Tap to select the button you want to assign to the flashlight.
3. Tap the *Assign a program* field and select **Flashlight**.
4. Tap **OK**. The button is assigned and will turn the flashlight on and off when pressed.

NOTE: For additional details about programming a keypad button, see *"Programming a Barcode Scan Button" on page 73*.

Task Manager

The Task Manager is useful for manually closing a program that may not be responding.

1. Tap **Windows Start**> **Task Manager**.
2. Tap the program you want to close. Then tap **End Task** or tap **Menu** > **End All Tasks**.

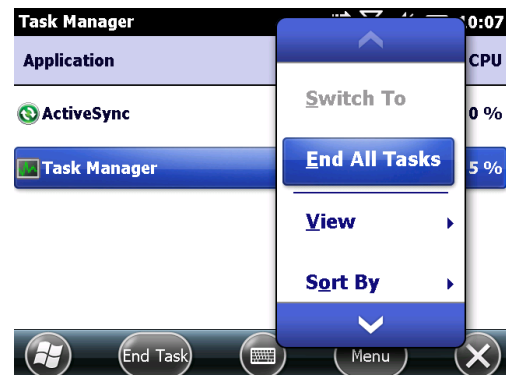*Figure 139: Windows Task Manager*

Figure 140: End all tasks

Working with Bluetooth

The handheld has been designed to operate with the internal Bluetooth®—a short-range wireless communication technology that exchanges information (beam) over a distance of up to 30 feet (10 meters), without requiring a physical connection.

Tap **Windows Start**> **Settings**> **Bluetooth**. Then tap the selections across the top of the screen to access the settings for Bluetooth use:

Mode:

- To enable Bluetooth use, tap to select the "Turn on Bluetooth" check box.

- Tap to select the check box "Make this device visible to other devices" to allow other devices to find your unit. (Optional)
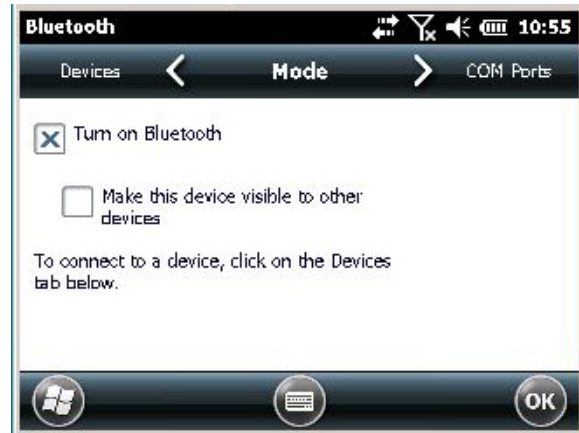

Figure 141: Settings> Turn on Bluetooth

Devices:

- Tap **Add new device...** to search for other Bluetooth devices.

  When the device is found, follow the instructions on the screen.

Figure 142: Add new device

COM Ports:

- Available only for Bluetooth devices that support serial (COM) connections. Follow the instructions on the screen.
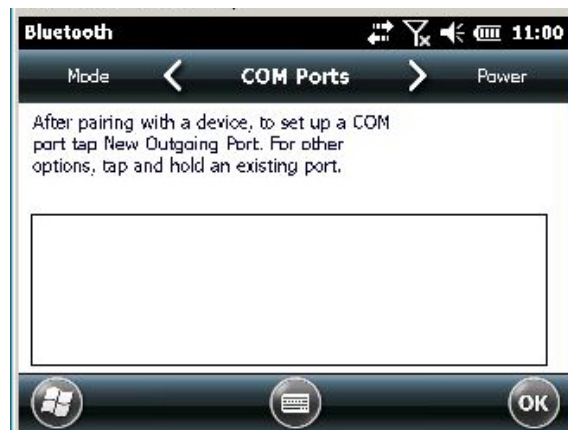

Figure 143: Set COM port

Power:

- Tap if you want to select "Maintain Bluetooth connections when device is turned off."

- Tap if you want to select "Allow Bluetooth activity to turn the device on." When this check box is selected, another Bluetooth device can send data and your unit will turn on and reply if necessary.

IMPORTANT

Leaving wireless options on reduces battery life. It is recommended that your handheld be configured to automatically turn off when not in use. Otherwise, another Bluetooth device could turn on your handheld, transfer data, and if it does not turn off again, drain the battery.

Figure 144: Bluetooth power settings

NOTE: To set up a VersaProbe Bluetooth connection, see *"Using VersaProbe with Bluetooth" on page 94*.

Receiving Beams

If you want to allow the unit to receive incoming beams, go to **Windows Start**> **Settings**> **Connections**> **Beam** and check the box for "Receive all incoming beams."

Working with GPS

Tap **Windows Start**> **Settings**> **System**> **System Information**. Then select **Wireless** from the selections that display across the top of the screen to verify that GPS is installed and is using COM 2.

The GPS is compatible with applications that accept the NMEA position information using a default baud rate of 9600.

GPS Settings

If you are using only one GPS-aware application, these settings do not need to be changed. However, to use multiple GPS-aware applications, tap **Windows Start**> **Settings**> **System**> **GPS** and tap the selections across the top of the screen:

Access	The GPS Intermediate Driver allows multiple applications to access the GPS receiver. To manage the GPS Intermediate Driver, uncheck the check box.
Hardware	COM2 is the hardware port dedicated for the built-in GPS. Verify that COM2 is selected. The internal GPS communicates at 9600 baud by default. If it has been modified by a third-party program, adjust to match the receiver baud rate.
Programs	Programs that use GPS need to know which port to use to access GPS data. When using more than one GPS-aware application, the same GPS program port must be used in each application. Ensure that the COM port on the GPS-aware application(s) is set to the same GPS program port as shown in the Programs selection. The program port must be a different port than the hardware port. By default, this is COM 3.

Using Assisted GPS (A-GPS)

To enable and disable Assisted GPS, **Windows Start**> **Settings**> **System**> **GPS.** Then select **A-GPS** from the selections at the top of the screen and check the box to "Enable Assisted GPS."

If the GPS has been used in the prior 72 hours, A-GPS will retain a memory of the satellite paths. The A-GPS satellite data is stored in memory for the satellites visible in your current position. Therefore the unit can lock on the satellites quickly, in less than 20 seconds in an open sky. The expiration of the A-GPS data is also shown in this menu. Using A-GPS may reduce accuracy in some situations. If you are unable to connect to the GPS using the default GPS settings, you can restore it to factory default settings by performing a system shutdown and leaving the unit shut down for approximately 5 minutes.

NOTE: While Assisted GPS can improve time-to-first-fix, it may reduce accuracy in some situations. Uncheck the box next to "Enable Assisted GPS" and reboot your unit if you wish to disable it.

Working with the Speaker/Microphone

The handheld comes with an integrated speaker and a microphone. It also has a 3.5 mm audio jack that is wired for a headset with a stereo speaker and microphone combination.

Recording

1. To record, tap **Windows Start**> **Notes**.
2. If you do not see the Recording tool bar, tap the Menu button at the bottom of the screen and select "View Recording Toolbar."
3. Tap the round Record symbol on the screen. See *Figure 147*.

   The unit will record until the square Stop symbol is pressed.
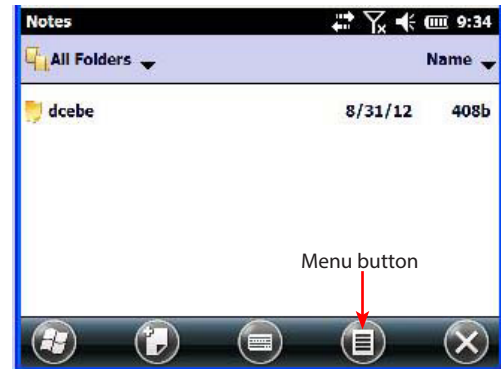
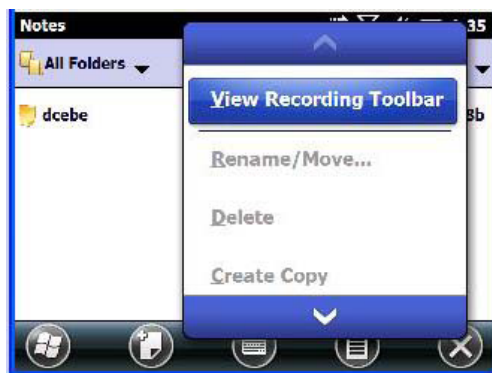   The recorded file is saved in the Notes folder.

Figure 145: Menu button

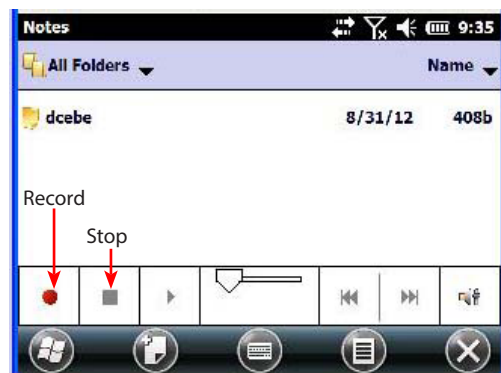
Figure 146: Select "View Recording Toolbar"

Figure 147: Record

Factory Reset/Clean Boot

⚠ WARNING

THIS PROCEDURE RESETS THE TRIMBLE RANGER TO "FACTORY FRESH" CONDITION AND REMOVES ALL PREVIOUSLY ADDED SOFTWARE, INCLUDING ANY BADGER METER SOFTWARE APPLICATIONS.

Start the factory reset procedure with the handheld powered on.

1. Press and hold the green power key. When the countdown timer starts, release the green power key.

   Result: The Power Menu displays.

2. Tap the **Reset** button on the Power Menu **and immediately press and hold BOTH the green power key AND the RIGHT key** on the handheld keypad.
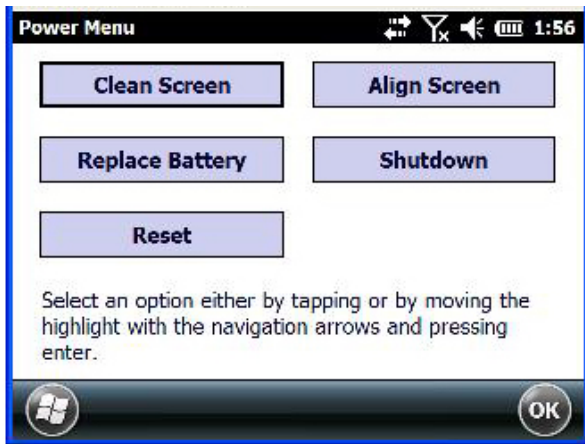

Figure 148: Power menu

Figure 149: Hold down green power key and RIGHT key

3. When the Clean Boot screen appears, release both the green power key and the RIGHT key.

4. Use the up/down navigation arrows on the keypad to select the **Ok** button on the screen. Then press the **ENTER** key on the keypad *if you want to completely clear the handheld*.

   NOTE: Tapping does not work on the Clean Boot screen. Use the keypad.

   *Result: Several screens display during the next few seconds: Blank screen, "**Scanning...Wait**" screen, **Windows Embedded** screen, **Finalizing** screen, blank screen again, and then the Windows Embedded screen again.*
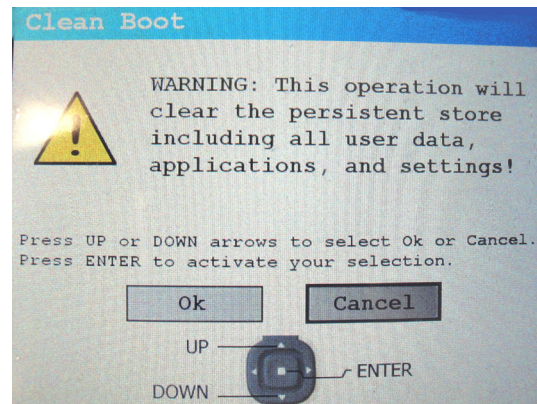

*Figure 150: Select **Ok** to clear handheld data*

5. Touch the handheld screen to start the reset process as instructed on the screen.

6. Tap the cross hairs that appear to align the touch screen. Continue to tap the cross hairs until the screen aligns.

7. At the Password screen, tap **Skip**.

8. Tap the Complete screen to finish the reset.

   NOTE: After performing a factory reset, the handheld date and time need to be reset. Tap **Windows Start**> **Settings**> **Clocks & Alarms** to set the correct time and date.

USING THE HANDHELD KEYPAD

Left = Bottom left screen command
Right = Bottom right screen command

Windows® Start

Circle shortcut - Can be programmed as barcode scanner button

Clear contents of the selected field

APP MENU and COMM MODE buttons are programmable

Navigate fields on screen with right/left/up/down arrows

Center key = select or enter

Numeric keys

Dash/Hyphen

Fn (Function) key + Yellow label key = Hot Key function

Yellow label denotes Hot Key

Alpha keys

On/Off power

Figure 151: Trimble Ranger 3 keypad

KEYPAD SHORTCUTS

The software includes a number of keys on the handheld that provide meter reading shortcuts.

Quick Key   Double press (or single press) the alpha key to perform the desired function. The default is double press.
Example: To change the route reading direction, press **DD** on the keypad. To toggle back, press **DD** again.

NOTE: See *"" on page 54* to change from double press to single press when using quick keys.

Hot Key   Press and hold the **Fn** key and the alpha or number key, then quickly release both keys to perform the desired function.
Example: Press and hold **Fn.** Then press and release **B** to bookmark an account.

Key	Quick Key Functions (double/single press)	Hot Key Functions (w/Fn key)
A	Auto navigation mode	--
B	Toggle bookmark	BOOKMARK
C	Next bookmark	--
D	Toggle route reading direction	RD DIRECT
E		
F	Route start	RTSTART
G		--
H	View High/Low Reads for current account	HI/LO
I		--
J	Encoder error processing	--
K	Settings	SETTINGS
L		Toggle Flashlight
M	Manual read entry	MAN RD
N	Next	MESSAGE
O	Read extended comment from ReadCenter	--
P	Previous	--
Q	Progress	PROGRESS
R	Reader code	RD CD
S	Search	SEARCH
T	Trouble code	TRBL CODE
U	Next unread	UNREAD
V		--
W	Next skipped	NXT SKIP
X		--
Y		--
Z	Toggle skipped	SKIP
9		Toggle screen backlight on and off
• (period/decimal point)		Toggle use of touch screen

CONFIGURATION OPTIONS

The Trimble Ranger 3 handheld is available in three configuration options:

- Handheld with an internal ORION ME transceiver and built-in GPS, WiFi, camera, flashlight and bar code scanner

- Handheld with an internal ORION CE receiver and built-in GPS, WiFi, camera, flashlight and bar code scanner

- Handheld for manual reads only (no radio) with built-in GPS and WiFi

Config 1: Handheld back view with internal ORION ME transceiver   Config 2: Handheld back view with internal ORION CE receiver   Config 3: Back of handheld with no radio

Figure 152: Handheld configuration options

The three configurations are similar but have distinguishing characteristics. A label on the back, at the top below the camera, indicates if the handheld has an internal ORION ME transceiver (Config 1) or an internal ORION CE receiver (Config 2). FCC information is imprinted inside the battery compartment.

A manual read handheld without a radio has no label, no FCC information and no antenna (Config 3).

NOTE: See *"Connecting an External Mobile Transceiver or Receiver" on page 84* for instructions on how to set up a single handheld to read both ORION Migratable and Classic endpoints.

Connecting an External Mobile Transceiver or Receiver

For handhelds configured with an internal transceiver or receiver (Config 1 and Config 2 on previous page), **one** external ORION ME mobile transceiver or ORION CE mobile receiver can be connected to read ORION endpoints.

1. Place the magnetic mount antenna on the vehicle roof. Ensure that the free area around the base of the antenna equals the antenna height.

    NOTE: The antenna must be at least two feet away from other antennas and the cable must be in good condition.

2. Press the green power key on the handheld keypad.

3. If the handheld has an internal **ORION ME transceiver**, connect an ORION CE mobile receiver using the receiver's communication cable. Plug the communication cable into the top of an ORION CE mobile receiver and insert the nine-pin serial end into the port at the bottom of the handheld.

    or

    If the handheld has an internal **ORION CE receiver**, connect an ORION ME mobile transceiver using the transceiver's communication cable. Plug the smaller end of the communication cable into the top of an ORION ME mobile transceiver and the larger end into the USB port at the bottom of the handheld.

    NOTE: You can also connect an *external* ORION ME mobile transceiver to a handheld with an *internal* ORION ME transceiver, or connect an *external* ORION CE mobile receiver to a handheld with an *internal* ORION CE receiver. The external connection increases the radio range for meter reading.

4. Connect the cable from the magnetic mount antenna to the RF connector at the top of the mobile transceiver or receiver and hand tighten so the connection is secure.

5. The mobile transceiver and receiver require a DC power source. Plug the transceiver or receiver DC power cable into the bottom of the transceiver or receiver and plug the other end into the vehicle's interior DC power source (utility source or cigarette lighter).

6. Switch on the mobile transceiver or receiver connected to the handheld.

    NOTE: Make sure to switch on the mobile transceiver or receiver connected to the handheld *before* starting any ORION software.
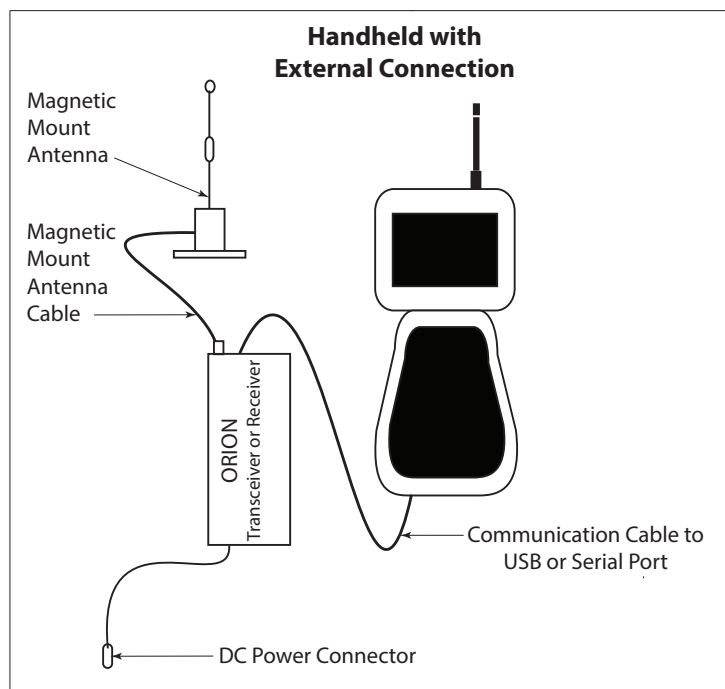

Figure 153: External transceiver or receiver set up

NOTE: Refer to the installation documents, *ORION FHSS Mobile Transceiver* and *ORION FHSS Mobile Receiver,* available at *www.badgermeter.com*, for status indicators and replacement parts.

7. Start the ORION Field Application software. For instructions, see *"Getting Started" on page 7*.

8. Navigate to the hardware settings and set the appropriate COM ports. See *"Hardware Options" on page 50* in the Settings section.

⚠️ **WARNING**

ONLY ONE EXTERNAL MOBILE TRANSCEIVER OR RECEIVER SHOULD BE CONNECTED TO THE HANDHELD. CONNECTING MORE THAN ONE WILL REDUCE SYSTEM PERFORMANCE.

APPENDIX

GLOSSARY

ADE®	Absolute digital encoder (ADE) is a position-based encoder that senses the position of each number wheel to determine the reading for touch and AMR/AMI systems. The encoder displays as "ENC" on the software screens.
AMI	Advanced metering infrastructure (AMI).
AMR	Automated meter reading (AMR) system that uses radio frequency technology to transmit meter readings between an endpoint and a data collection device.
BEACON® AMA	The BEACON AMA software suite from Badger Meter combines reading data management software with tools for meter reading and network management, plus Advanced Metering Analytics. BEACON AMA brings greater visibility and increased efficiency to day-to-day utility operations.
C700D	Endpoint type exclusively used for connectivity with Elster/AMCo C700 digital encoders.
comment code	A message from the utility office to the meter reader displayed on the account read screen. The messages are defined and maintained by the utility and chosen from a defined list created in the Badger Meter reading data management software.
ENC	Used in the software to refer to a three-wire encoder, including the Absolute Digital Encoder.
encoder error	A situation (ORION or GALAXY radio or touch read) in which one or more of the number wheels in the mechanical encoder cannot be read. There are two common causes of encoder errors:
	1. Improper alignment of the number wheels in the encoder
	2. A component failure inside the encoder
	If the error is caused by a misalignment of the number wheels, the error may potentially be cleared by running consumption and changing the reading value of the number wheel causing the error. If the encoder error occurs for the same account over two or more continuous reading cycles, the encoder has most likely failed and should be replaced.
endpoint	A communication device located at the meter that encodes and communicates reading data to a data collection device (handheld, laptop computer or gateway).
extended status	Refers to the complete information and status available from the endpoint, which includes meter type, resolution code, programmed dates and any exception errors.
field	A piece of information in the software, such as an address or the meter serial number, that resides on a screen.
final read	A meter reading taken as a customer moves from one location to another in order to send the customer their final bill.
GUID	A globally unique name (GUID) consisting of a number of characters is assigned to every handheld. The GUID is not duplicated anywhere in the world.
HR-E	High resolution absolute encoder with eight-wheel mechanical display. The HR-E encoder displays as "HRE" on the software screens.
HR-E LCD	High resolution electronic encoder with digital display. The HR-E LCD encoder displays as "ELCD" on the software screens.
main menu	The screen that provides access to the main software functions.
mobile receiver	A mobile one-way communication device that receives information from an endpoint via a mobile data collection device (handheld or laptop computer).
mobile transceiver	A mobile two-way communication device that receives and transmits information to and from an endpoint via a mobile data collection device (handheld or laptop computer).
module	In general, an electronic product used to report a meter's reading. The Badger Meter ORION electronics which are needed to perform a radio read is an example of a module.
navigation bar	Bar at the bottom of the software screens with buttons that allow you to navigate to different screens in the software or exit the software application.

ORION CE	The ORION Classic endpoint is a one-way local automated meter reading (AMR) system which communicates with a mobile receiver designed to read ORION water and gas endpoints. The receiver has Frequency Hopping Spread Spectrum (FHSS) technology to minimize interference and eliminate FCC licensing.
ORION Endpoint Utility	The programming and quick read software application for ORION Cellular, Migratable (ME), Fixed Network (SE) and Classic (CE) endpoints.
ORION Field Application	The route meter reading software application for the handheld.
ORION ME, ORION SE	The ORION Migratable and ORION Fixed Network endpoints are two-way utility management solutions. ORION Migratable (and ORION Fixed Network in mobile mode) endpoints communicate with a mobile transceiver designed to receive signals from and send signals to ORION Migratable and Fixed Network water and gas endpoints. The transceiver has Frequency Hopping Spread Spectrum (FHSS) technology to minimize interference and eliminate FCC licensing.
programming menu	A specific menu within the Badger Meter AMR software that allows module programming.
Quick Read	A feature that allows the operator to capture a reading for a specific module. The Quick Read function is available for touch modules or ORION endpoints. When quick reading ORION endpoints, the readings can be displayed from up to 50 endpoints in range of the Badger Meter ORION handheld, not just from one endpoint.
potential leak	A status reported by an ORION endpoint showing that the meter has registered continuous flow and may have a potential leak.
RDMS	Refers to the Badger Meter reading data management software which acts as an interface between the utility's billing software and the meter reading devices. The handheld software loads route information from the reading data management software and unload meter information to the reading data management software.
RF	Radio frequency.
route	A list of meters to read.
route management software	The software product or system that loads route information into the computer and accepts completed meter readings from the handheld computer.
route progress	The function that displays the number of meters read in the current route, along with other related information.
RTR®	The Badger Meter Recordall® Endpoint Register (RTR) is used in conjunction with Recordall disc, turbo, compound and fire series water meters to measure totalized flow through the meter and output a signal to Badger Meter meter reading products.
settings	The values that can be changed by the user to control behavior of certain screen functions.
tamper	A status reported by an ORION endpoint showing that the wire between the register and the endpoint is cut or shorted.
text message	A message entered by the meter reader to be sent to the utility office via the Badger Meter reading data management software.
trouble code	A message that is chosen by the meter reader from a list stored in the handheld and sent to the utility office describing a condition or status at the meter.
VersaProbe	A meter reading wand device that can be used with the handheld to read touch modules.
work item	Optional task request set up with the reading data management software for collecting data, including extended status, from ORION Migratable (and Fixed Network in mobile mode) endpoints. Work items are completed and returned to the reading data management software with the route information.

ACCOUNT STATUS ICONS

Icons display on the account read screen. Click an icon to see a description for what the icon represents.

Route completed	✓	Potential leak	
All routes completed	✓+	No usage	
Bookmarked		Gas cover removed	
Encoder end of life		E Series sensor error	
Encoder error		E Series low temperature	
Encoder programmed		E Series empty pipe	
Encoder removal		Message to reader	
Encoder temperature		Message from reader	
Endpoint low battery		Skipped account	
Endpoint programmed		High reading	
Endpoint tamper		Low reading	
Magnetic tamper		Reverse flow	

TECHNOLOGY ICONS

During route reading, the reading technology hardware configured for the handheld is displayed as an icon in the title bar of the screen. The following icons may display when connected and communicating with the handheld.

ORION Classic technology connected	C	ORION Migratable technology connected	M	VersaProbe technology connected	VP

ORION® Field Application 4.0 for Trimble® Ranger 3 with ReadCenter®

STATUS CODES

Status codes are displayed on several of the screens within the software. The following is a list of status codes and their descriptions.

Status Code	Description
CR	Cover Removal (gas only)
EE	Encoder/Register Error
IR	Programmed via IR – endpoint was programmed using the infrared cable
LB	Low Battery
LK	Leak
MMI	Mobile Mode Indicator
NU	No Usage
REV	Reverse Flow (encoder or gas only)
T	Tamper

VALID COM PORTS

The following is a list of valid COM ports. See *"Hardware Options" on page 50* to adjust the COM port settings.

Technology	COM Port
External ORION CE or VersaProbe	COM1
GPS - Ranger 3 only	COM2
Not applicable	COM3
External ORION ME	COM4
Not applicable	COM5
Not applicable	COM6
Internal ORION CE or ME	COM7
Bluetooth VersaProbe	COM8
Bluetooth VersaProbe	COM9
ORION In Home Display	COM10

GAS METER DRIVE ROTATION

The table below displays the drive gear rotation direction for common gas meter makes/models.

CW = clockwise

CCW = counter clockwise

Gas Meter	ORION Type	Direction of Rotation
Elster®/American		
AC-250	AMCO Res	CCW
AL-425	AMCO Res	CCW
AC-630	AMCO Res	CCW
AC-800	AMCO Res	CCW
AL-800	AMCO C&I	CW
AL-1000	AMCO C&I	CW
Itron®/Actaris®		
Metris 250	Itron/ActarisRes	CCW
400A	Itron/ActarisRes	CCW
675A	Itron/Actaris C&I	CW
800A	Itron/Actaris C&I	CW
1000A	Itron/Actaris C&I	CW
Sensus®		
Cubix 250	Sensus Res	CCW
R275	Sensus Res	CCW
R315	Sensus Res	CCW
415	Sensus 415	CCW
750	Sensus C&I	CCW
1000	Sensus C&I	CCW

HANDHELD STATUS INDICATORS

Status indicators may display at the top of the screen. The status indicator icons are shown here with a description of what they indicate.

Icon	Description	Icon	Description
	Battery power is low		Other networks are detected. Tap to access an available network
	Battery power is very low		Wireless network connected
	Battery communication error		Active connection, but not currently synchronizing
	Battery charging		Inactive connection to computer or wireless network
	Battery level		Synchronizing
	Battery warning out of temperature range		Synchronizing error
	Instant messages received		Pending alarm
	Speaker is on		Phone is turned on and signal strength
	Speaker is off (or in mute position)		Phone is turned off. To turn it on, tap this icon
	SIM card missing		No signal
	Faulty SIM card		No service. Phone connection unavailable or network error.
	E-mail has been received		Lost signal. The unit is searching for a signal.
	Tap to view more notifications	E	EDGE network is available
	Data call is in progress		EDGE network connected
	Roaming mode	G	GPRS network available
	3G connected		GPRS network connected
		H	HSDPA network available

LOADING AND UNLOADING WITH MEMORY STICK

The **Load/Unload** option on the ORION Field Application main menu is used to load and unload route files on the handheld using a memory stick.

NOTE: Route files can also be transferred using FTP with an Internet connection. For complete information, refer to the Wireless Load and Unload User Manual, available at *www.badgermeter.com*.
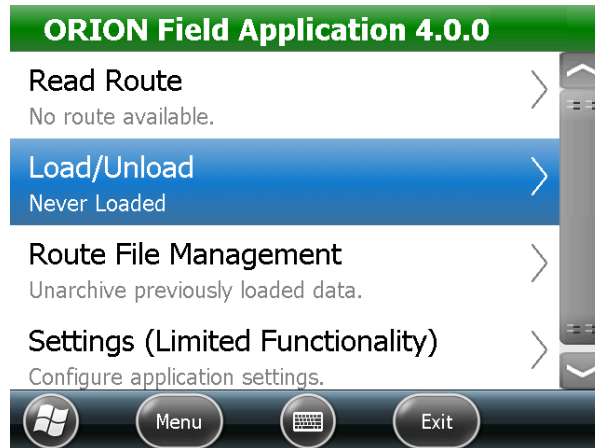

Figure 154: Main menu: Load/Unload

Initialize Memory Stick

Before a memory stick is used to load/unload route files, it must be initialized by associating it with a handheld. This process only needs to be done one time.

NOTE: If you need to change the handheld Device Name, change the Device Name *before* you initialize the memory stick.

1. Insert a *blank* memory stick into the USB port at the bottom of the handheld.

    Result: A message displays asking if you want to associate the memory stick with the handheld.

2. Tap **Yes**.

    The LOAD and UNLOAD folders are created on the memory stick during the initialization process.
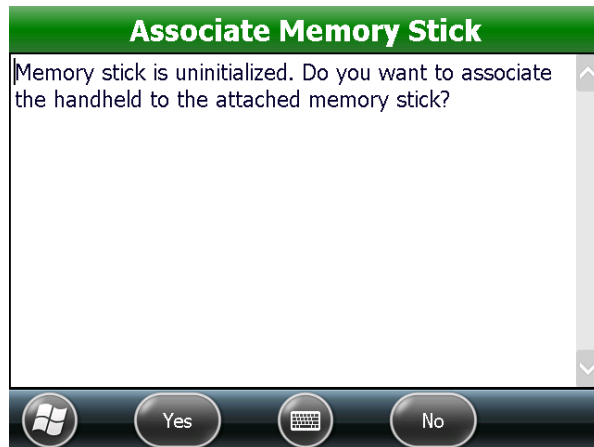

Figure 155: Initialize memory stick

LOAD ROUTE

1. Transfer the route files from the reading data management software to the memory stick.
2. Insert the memory stick into the USB port at the bottom of the handheld.
3. From the ORION Field Application main menu, tap **Load/Unload**.

   Result: The Load screen displays the load files (services) on the memory stick.
4. Tap the **Memory Stick** file on the Load screen to begin the load process.

   Result: A progress bar displays during the route load process.

   When the load process is complete, the main menu displays showing the **Read Route** option with the number of services, and the **Load/Unload** option with the date and time of the load.
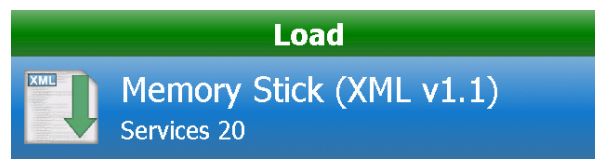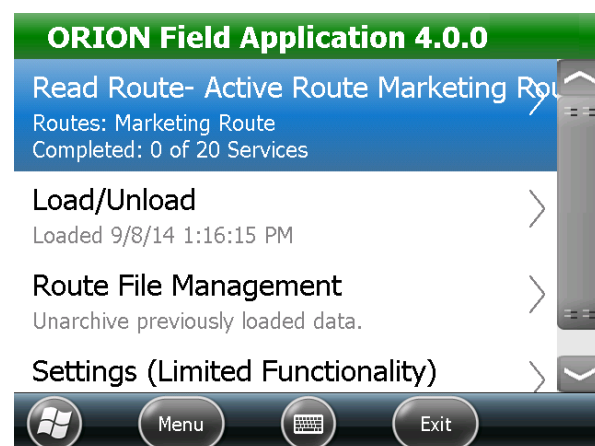5. Remove the memory stick from the handheld USB port. The route is ready to be read.

Load

Memory Stick (XML v1.1)
Services 20

Figure 156: Tap to load route

ORION Field Application 4.0.0

Read Route- Active Route Marketing Rou
Routes: Marketing Route
Completed: 0 of 20 Services

Load/Unload
Loaded 9/8/14 1:16:15 PM

Route File Management
Unarchive previously loaded data.

Settings (Limited Functionality)

Unload Route

1. Insert the memory stick into the USB port at the bottom of the handheld.
2. From the ORION Field Application main menu, tap **Load/Unload**.

   Result: The Unload screen displays the files (services) ready to unload.
3. Tap the **Memory Stick** file on the Unload screen to begin the unload process.

   Result: The route files unload to the memory stick.

   When the unload process is complete, the main menu displays showing the **Load/Unload** option with the date and time of the unload.
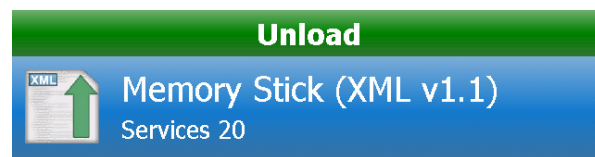4. Remove the memory stick from the handheld USB port. The unload files are ready for RDMS.

Unload

Memory Stick (XML v1.1)
Services 20

Figure 158: Tap to unload route

USING VERSAPROBE WITH BLUETOOTH

IMPORTANT

The VersaProbe should physically be within 10 feet of the handheld to set up a successful wireless connection and the battery should be fully charged.

Place the VersaProbe in Discovery Mode

This process places the VersaProbe in discovery mode so it can be recognized with the Bluetooth connection. If performed correctly, this step only needs to done once.

1. Squeeze and hold the trigger of the VersaProbe.

    Result: You will see a series of messages on the VersaProbe display and hear three beeps.

    After the third beep, the message "RELEASE BUTTON NOW TO DISCOVER" is displayed.

2. Release the trigger.

    Result: The VersaProbe is in discovery mode.

    NOTE: The VersaProbe remains in discovery mode for five minutes during which time the VersaProbe emits a fast ticking sound. The Bluetooth connection to the handheld must be made before the discovery mode connection times out.

Figure 159: VersaProbe in discovery mode

Set up the VersaProbe Bluetooth Connection on the Handheld

This process prepares the Bluetooth to recognize the VersaProbe.

1. Go to **Windows Start**> **Settings**> **Bluetooth**.
2. Tap to select **Mode** in the selection bar at the top of the screen.
3. Check the box to "Turn on Bluetooth."
4. Tap to select **Devices** in the selection bar.
5. Tap **Add new device**.

    Result: The system searches for the VersaProbe. When found, the serial number is displayed.

6. Tap to select the VersaProbe serial number. Then tap **Next**.
7. When requested, enter four zeroes (**0000**) in the *passcode* field to establish a secure Bluetooth connection. Tap **Next**.
8. Tap to select **COM Ports** in the selection bar.
9. Tap **New Outgoing Port**.
10. When the VersaProbe serial number displays, tap to select it. Then tap **Next**.
11. Select the COM port. Valid COM ports are COM 8 and COM 9.

    The secure connection check box should remain checked.
12. Tap **Finish**.

    Result: The VersaProbe serial number and new COM port is displayed. The Bluetooth connection on the handheld is complete.
13. Tap **OK** to return to the Windows home screen.

Set the VersaProbe COM Port on the Handheld

1. Access the main menu in the ORION Field Application software on the handheld. If you need help, go to *"Program Startup and Exit" on page 9*.
2. Select **Settings**> **Hardware Options** to set the COM port for the VersaProbe. For additional information, see *"VersaProbe Touch Pad Reads" on page 19*.
3. Tap **Back** twice to close the Settings screens and return to the main menu.

Initializing the VersaProbe Bluetooth Connection with the Handheld

IMPORTANT

Do not access the ORION Field Application software on the handheld until you perform steps 1 and 2.

1. Squeeze and hold the VersaProbe trigger.
2. When the message "RELEASE BUTTON NOW TO CONNECT" is displayed, release the trigger.

    Result: The Bluetooth connection will initialize and you will hear a "ticking" sound.
3. Access the ORION Field Application software on the handheld. The ticking stops shortly after accessing **Read Route**.

    NOTE: If there is no touch account in the route, the ticking does not stop.
4. Perform the read normally.

Terminating the VersaProbe Bluetooth Connection

1. When you finish reading, exit the ORION Field Application software.
2. The Bluetooth Connection may disable automatically. If the VersaProbe begins ticking, press and release the trigger to disable the connection.

    Result: The display confirms the Bluetooth connection has ended, then goes blank.

TROUBLESHOOTING

TROUBLESHOOTING

Communications Error

The correct COM port must be set for any hardware attached to the handheld. See *"Hardware Options" on page 50* and *"Valid COM Ports" on page 93* for additional information.

Performing a Quick Read While Route Reading

If you are using the ORION Field Application route reading software and attempt to access the ORION Endpoint Utility software to perform a Quick Read without first exiting the ORION Field Application, you will trigger a Transceiver Communications Error as shown here.

Figure 160: Error occurs when trying to access two applications at the same time

The ORION Endpoint Utility is a separate software application. To access, you must properly exit the ORION Field Application software. If you need help, see *"Program Startup and Exit" on page 9*. Then go to **Windows Start**> **Badger Field Applications**> **ORION Endpoint Utility** to access the ORION Endpoint Utility.

Clearing the Error
If you receive the Transceiver Communications Error, tap **Cancel**.

Then tap the **Menu** button and select **Exit** to return to route reading.

To perform a Quick Read while route reading, use the **Quick Read** option from the account read screen menu. See *"Quick Read" on page 42* for complete information.

TECHNICAL SUPPORT

Errors do not normally occur, so it is important to report all occurrences of error windows to Badger Meter Technical Support.

NOTE: Trouble Codes and/or information from any notes created in Comments Codes/Messages can be useful when reporting a problem to Technical Support.

What to Report
Provide the following information if possible when contacting Technical Support:

- The handheld screen that was active

- The steps being performed at the time

- Any entries that were made on the screen

- The error message, including any error code and explanation that is shown

- The current condition of the laptop

The Technical Support Specialist may request you to fax notes or other information to assist in the investigation.

Contact Badger Meter Technical Support by phone, email or fax

Phone: 800-456-5023

Email: TechSupport@BadgerMeter.com

Fax: 888-371-5982

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